

January 27, 2000

Mr. Steven Pearl  
PSI Energy, Inc.  
1000 East Main Street  
Plainfield, IN 46168

Re: Significant Source Modification No:  
**167-11328-00021**

Dear Mr. Pearl:

PSI Energy, Inc. applied for a Part 70 operating permit on November 14, 1996 for the Wabash River Generating Station. This operation generates electricity. An application to modify the source was received on August 24, 1999. Pursuant to 326 IAC 2-7-10.5 the following emission units are approved for construction at the source:

1. Boiler, identified as unit 1C, with a maximum capacity of 397.8 million BTU per hour, using low NOx burners with flue gas recirculation as control, and exhausting to stack 1C.
2. Fuel preheater, identified as Unit 1E, with a maximum capacity of 7.13 million BTU per hour, using a low emission rate burner (described by the manufacturer as "moderate" instead of "standard") or equivalent for control, and exhausting to stack 1E.
3. Combustion Turbine, identified as unit 1A, with a maximum capacity of 1709.1 million BTU per hour, utilizing syngas or natural gas for fuel, using steam injection for control, and exhausting to stack 1A (combined cycle mode) or 1D (simple cycle mode).

The proposed Significant Source Modification approval will be incorporated into the pending Part 70 permit application pursuant to 326 IAC 2-7-10.5(l)(3). If there are no changes to the proposed construction of the emission units, the source may begin operating on the date that IDEM receives an affidavit of construction pursuant to 326 IAC 2-7-10.5(h). If there are any changes to the proposed construction the source can not operate until an Operation Permit Validation Letter is issued.

This decision is subject to the Indiana Administrative Orders and Procedures Act - IC 4-21.5-3-5. If you have any questions on this matter call (812) 462-3433, and ask for Rob Harmon.

Sincerely,

George Needham  
Director  
Vigo County Air Pollution Control

Attachments  
RKH

cc: Winter Bottum - IDEM, OAM  
Mindy Hahn - IDEM, OAM

**PART 70 SIGNIFICANT  
SOURCE MODIFICATION**

**OFFICE OF AIR MANAGEMENT  
and  
VIGO COUNTY AIR POLLUTION CONTROL**

**PSI Energy, Inc.  
Wabash River Generating Station  
445 Bolton Road  
West Terre Haute, Indiana 47885**

(herein known as the Permittee) is hereby authorized to construct and operate subject to the conditions contained herein, the emission units described in Section A (Source Summary) of this permit.

This approval is issued in accordance with 326 IAC 2 and 40 CFR Part 70 Appendix A and contains the conditions and provisions specified in 326 IAC 2-7 as required by 42 U.S.C. 7401, et. seq. (Clean Air Act as amended by the 1990 Clean Air Act Amendments), 40 CFR Part 70.6, IC 13-15 and IC 13-17.

Source Modification No.: CP 167-11328-00021	
Issued by: George M. Needham, Director Vigo County Air Pollution Control	Issuance Date:

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## SECTION A

## SOURCE SUMMARY

This permit is based on information requested by the Indiana Department of Environmental Management (IDEM), Office of Air Management (OAM) and Vigo County Air Pollution Control (VCAPC). The information describing the source contained in conditions A.1 through A.3 is descriptive information and does not constitute enforceable conditions. However, the Permittee should be aware that a physical change or a change in the method of operation that may render this descriptive information obsolete or inaccurate may trigger requirements for the Permittee to obtain additional permits or seek modification of this permit pursuant to 326 IAC 2, or change other applicable requirements presented in the permit application.

### A.1 General Information [326 IAC 2-5.1-3(c)] [326 IAC 2-6.1-4(a)]

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The Permittee owns and operates a stationary power plant that includes boilers, a combustion turbine, and a gasification operation.

Authorized Individual:	Mr. Jack Stultz
Source Address:	445 Bolton Road, West Terre Haute, Indiana 47885
Mailing Address:	c/o Steven L. Pearl, 1000 East Main Street, Plainfield, Indiana 46168
Phone Number:	(317) 838-1758 (contact) or (812) 535-2451 (source)
SIC Code:	4911
County Location:	Vigo County
County Status:	Maintenance for Sulfur Dioxide
	Attainment area for all other criteria pollutants
Source Status:	Part 70 Permit Program
	Major Source, under PSD Rules;
	Major Source, Section 112 of the Clean Air Act

### A.2 Emissions units and Pollution Control Equipment Summary

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This stationary source is approved to construct and operate the following emissions units and pollution control devices:

1. Boiler, identified as unit 1C, with a nominal maximum capacity of 397.8 million BTU per hour, using low NOx burners with flue gas recirculation as control, and exhausting to stack 1C.
2. Fuel preheater, identified as Unit 1E, with a nominal maximum capacity of 7.13 million BTU per hour, using a low emission rate burner (described by the manufacturer as "moderate" instead of "standard") or equivalent for control, and exhausting to stack 1E.
3. Combustion Turbine, identified as unit 1A, with a nominal maximum capacity of 1709.1 million BTU per hour, utilizing syngas (combined cycle mode) or natural gas (either combined cycle or simple cycle mode) for fuel, using steam injection for control, and exhausting to stack 1A (combined cycle mode) or 1D (simple cycle mode).

### A.3 Part 70 Permit Applicability [326 IAC 2-7-2]

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This stationary source is required to have a Part 70 permit by 326 IAC 2-7-2 (Applicability) because:

- (a) It is a major source, as defined in 326 IAC 2-7-1(22);
- (b) It is an affected source under Title IV (Acid Deposition Control) of the Clean Air Act, as defined in 326 IAC 2-7-1(3);
- (c) It is a source in a source category designated by the United States Environmental Protection Agency (U.S. EPA) under 40 CFR 70.3 (Part 70 - Applicability).

## **SECTION B                      GENERAL CONSTRUCTION CONDITIONS**

### **B.1      Permit No Defense [IC 13]**

This permit to construct does not relieve the Permittee of the responsibility to comply with the provisions of the Indiana Environmental Management Law (IC 13-11 through 13-20; 13-22 through 13-25; and 13-30), the Air Pollution Control Law (IC 13-17) and the rules promulgated thereunder, as well as other applicable local, state, and federal requirements.

### **B.2      Definitions [326 IAC 2-7-1]**

Terms in this permit shall have the definition assigned to such terms in the referenced regulation. In the absence of definitions in the referenced regulation, any applicable definitions found in IC 13-11, 326 IAC 1-2, and 326 IAC 2-1.1-1 shall prevail.

### **B.3      Effective Date of the Permit [IC13-15-5-3]**

Pursuant to IC 13-15-5-3, this permit becomes effective upon its issuance.

### **B.4      Revocation of Permits [326 IAC 2-1.1-9(5)]**

Pursuant to 326 IAC 2-1.1-9(5)(Revocation of Permits), the Commissioner may revoke this permit if construction is not commenced within eighteen (18) months after receipt of this approval or if construction is suspended for a continuous period of one (1) year or more.

### **B.5      Modification to Permit [326 IAC 2]**

Notwithstanding the Section B Condition entitled "Significant Source Modification", all requirements and conditions of this construction permit shall remain in effect unless modified in a manner consistent with procedures established for modifications of construction permits pursuant to 326 IAC 2 (Permit Review Rules).

### **B.6      Significant Source Modification [326 IAC 2-7-10.5(h)]**

This document shall also become the approval to operate pursuant to 326 IAC 2-7-10.5(h) when, prior to start of operation, the following requirements are met:

- (a) The attached affidavit of construction shall be submitted to Vigo County Air Pollution Control (VCAPC), verifying that the emission units were constructed as proposed in the application. The emissions units covered in the Significant Source Modification approval may begin operating on the date the affidavit of construction is postmarked or hand delivered to VCAPC if constructed as proposed.
- (b) If actual construction of the emissions units differs from the construction proposed in the application, the source may not begin operation until the source modification has been revised pursuant to 326 IAC 2-7-11 or 326 IAC 2-7-12 and an Operation Permit Validation Letter is issued.
- (c) If construction is completed in phases; i.e., the entire construction is not done continuously, a separate affidavit must be submitted for each phase of construction. Any permit conditions associated with operation start up dates such as stack testing for New Source Performance Standards (NSPS) shall be applicable to each individual phase.
- (d) The Permittee shall receive an Operation Permit Validation Letter from the Director of Vigo County Air Pollution Control and attach it to this document.

However, in the event that the Title V application is being processed at the same time as this application, the following additional procedures shall be followed for obtaining the right to operate:

- (1) If the Title V draft permit has not gone on public notice, then the change/addition covered by the Significant Source Modification will be included in the Title V draft.

- (2) If the Title V permit has gone thru final EPA proposal and would be issued ahead of the Significant Source Modification, the Significant Source Modification will go thru a concurrent 45 day EPA review. Then the Significant Source Modification will be incorporated into the final Title V permit at the time of issuance.
- (3) If the Title V permit has not gone thru final EPA review and would be issued after the Significant Source Modification is issued, then the Modification would be added to the proposed Title V permit, and the Title V permit will issued after EPA review.

**B.7 Local Agency Requirement**

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This permit shall also be considered to be the local permit, a separate application and approval is not required.

**B.8 NSPS Reporting Requirement**

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Pursuant to the New Source Performance Standards (NSPS), Part 60.40a, Subpart Da, the source owner/operator is hereby advised of the requirement to report the following at the appropriate times:

- (a) Commencement of construction date (no later than 30 days after such date);
- (b) Anticipated start-up date (not more than 60 days or less than 30 days prior to such date);
- (c) Actual start-up date (within 15 days after such date); and
- (d) Date of performance testing (at least 30 days prior to such date), when required by a condition elsewhere in this permit.

Reports are to be sent to:

Indiana Department of Environmental Management  
Compliance Data Section, Office of Air Management  
100 North Senate Avenue, P. O. Box 6015  
Indianapolis, IN 46206-6015

and

Vigo County Air Pollution Control  
103 South 3<sup>rd</sup> Street  
Terre Haute, Indiana 47807

The application and enforcement of these standards have been delegated to the IDEM OAM and VCAPC. The requirements of 40 CFR Part 60 are also federally enforceable.

## SECTION C

## SOURCE OPERATION CONDITIONS

Entire Source
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### C.1 Certification [326 IAC 2-7-4(f)][326 IAC 2-7-6(1)][326 IAC 2-7-5(3)(C)]

- (a) Where specifically designated by this approval or required by an applicable requirement, any application form, report, or compliance certification submitted under this approval shall contain certification by a responsible official of truth, accuracy, and completeness. This certification, shall state that, based on information and belief formed after reasonable inquiry, the statements and information in the document are true, accurate, and complete.
- (b) One (1) certification shall be included, on the attached Certification Form, with each submittal.
- (c) A responsible official is defined at 326 IAC 2-7-1(34).

### C.2 Preventive Maintenance Plan [326 IAC 2-7-5(1),(3) and (13)] [326 IAC 2-7-6(1) and (6)] [326 IAC 1-6-3]

- (a) If required by specific condition(s) in Section D of this permit, the Permittee shall prepare and maintain Preventive Maintenance Plans (PMP) within ninety (90) days after issuance of this permit, including the following information on each emissions unit:
  - (1) Identification of the individual(s) responsible for inspecting, maintaining, and repairing emission control devices;
  - (2) A description of the items or conditions that will be inspected and the inspection schedule for said items or conditions;
  - (3) Identification and quantification of the replacement parts that will be maintained in inventory for quick replacement.

If due to circumstances beyond its control, the PMP cannot be prepared and maintained within the above time frame, the Permittee may extend the date an additional ninety (90) days provided the Permittee notifies:

Indiana Department of Environmental Management  
Compliance Branch, Office of Air Management  
100 North Senate Avenue, P. O. Box 6015  
Indianapolis, Indiana 46206-6015

And

Vigo County Air Pollution Control  
103 South 3<sup>rd</sup> Street  
Terre Haute, Indiana 47807

- (b) The Permittee shall implement the Preventive Maintenance Plans as necessary to ensure that failure to implement the Preventive Maintenance Plan does not cause or contribute to a violation of any limitation on emissions or potential to emit.
- (c) PMP's shall be submitted to IDEM, OAM and VCAPC, upon request and shall be subject to review and approval by IDEM, OAM and VCAPC. IDEM, OAM and VCAPC, may require the Permittee to revise its Preventive Maintenance Plan whenever lack of proper maintenance causes or contributes to any violation.



C.3 Permit Amendment or Modification [326 IAC 2-7-11] [326 IAC 2-7-12]

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- (a) The Permittee must comply with the requirements of 326 IAC 2-7-11 or 326 IAC 2-7-12 whenever the Permittee seeks to amend or modify this approval.

- (b) Any application requesting an amendment or modification of this approval shall be submitted to:

Indiana Department of Environmental Management  
Permits Branch, Office of Air Management  
100 North Senate Avenue, P.O. Box 6015  
Indianapolis, Indiana 46206-6015

And

Vigo County Air Pollution Control  
103 South 3<sup>rd</sup> Street  
Terre Haute, Indiana 47807

Any such application should be certified by the "responsible official" as defined by 326 IAC 2-7-1(34) only if a certification is required by the terms of the applicable rule

- (c) The Permittee may implement administrative amendment changes addressed in the request for an administrative amendment immediately upon submittal of the request. [326 IAC 2-7-11(c)(3)]

C.4 Inspection and Entry [326 IAC 2-5.1-3(e)(4)(B)] [326 IAC 2-6.1-5(a)(4)]

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Upon presentation of proper identification cards, credentials, and other documents as may be required by law, and subject to the Permittee's right under all applicable laws and regulations to assert that the information collected by the agency is confidential and entitled to be treated as such, the Permittee shall allow IDEM, OAM, VCAPC, U.S. EPA, or an authorized representative to perform the following:

- (a) Enter upon the Permittee's premises where a permitted source is located, or emissions related activity is conducted, or where records must be kept under the conditions of this permit;
- (b) Have access to and copy, at reasonable times, any records that must be kept under this title or the conditions of this permit or any operating permit revisions;
- (c) Inspect, at reasonable times, any processes, emissions units (including monitoring and air pollution control equipment), practices, or operations regulated or required under this permit or any operating permit revisions;
- (d) Sample or monitor, at reasonable times, substances or parameters for the purpose of assuring compliance with this permit or applicable requirements; and
- (e) Utilize any photographic, recording, testing, monitoring, or other equipment for the purpose of assuring compliance with this permit or applicable requirements.

**C.5 Opacity [326 IAC 5-1]**

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Pursuant to 326 IAC 5-1-2 (Opacity Limitations), except as provided in 326 IAC 5-1-3 (Temporary Alternative Opacity Limitations), opacity shall meet the following, unless otherwise stated in this permit:

- (a) Opacity shall not exceed an average of forty percent (40%) in any one (1) six (6) minute averaging period as determined in 326 IAC 5-1-4.
- (b) Opacity shall not exceed sixty percent (60%) for more than a cumulative total of fifteen (15) minutes (sixty (60) readings) as measured according to 40 CFR 60, Appendix A, Method 9 or fifteen (15) one (1) minute nonoverlapping integrated averages for a continuous opacity monitor in a six (6) hour period.

**C.6 Fugitive Dust Emissions [326 IAC 6-4]**

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The Permittee shall not allow fugitive dust to escape beyond the property line or boundaries of the property, right-of-way, or easement on which the source is located, in a manner that would violate 326 IAC 6-4 (Fugitive Dust Emissions). 326 IAC 6-4-2(4) is not federally enforceable.

**C.7 Operation of Equipment [326 IAC 2-7-6(6)]**

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Except as otherwise provided in this approval, all air pollution control equipment listed in this approval and used to comply with an applicable requirement shall be operated at all times that the emission units vented to the control equipment are in operation.

**C.8 Stack Height [326 IAC 1-7]**

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The Permittee shall comply with the applicable provisions of 326 IAC 1-7 (Stack Height Provisions), for all exhaust stacks through which a potential (before controls) of twenty-five (25) tons per year or more of particulate matter or sulfur dioxide is emitted by using good engineering practices (GEP) pursuant to 326 IAC 1-7-3.

**Testing Requirements**

**C.9 Performance Testing [326 IAC 3-6]**

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- (a) Compliance testing on new emission units shall be conducted within 60 days after achieving maximum production rate, but no later than 180 days after initial start-up, if specified in Section D of this approval. All testing shall be performed according to the provisions of 326 IAC 3-6 (Source Sampling Procedures), except as provided elsewhere in this permit, utilizing any applicable procedures and analysis methods specified in 40 CFR 51, 40 CFR 60, 40 CFR 63, 40 CFR 75, or other procedures approved by IDEM, OAM and VCAPC.

A test protocol, except as provided elsewhere in this permit, shall be submitted to:

Indiana Department of Environmental Management  
Compliance Data Section, Office of Air Management  
100 North Senate Avenue, P. O. Box 6015  
Indianapolis, Indiana 46206-6015

And

Vigo County Air Pollution Control  
103 South 3<sup>rd</sup> Street  
Terre Haute, Indiana 47807

no later than thirty-five (35) days prior to the intended test date. The Permittee shall submit a notice of the actual test date to the above address so that it is received at least two weeks prior to the test date.

- (b) All test reports must be received by IDEM, OAM and VCAPC within forty-five (45) days after the completion of the testing. An extension may be granted by the IDEM, OAM and VCAPC, if the source submits to IDEM, OAM and VCAPC, a reasonable written explanation within five (5) days prior to the end of the initial forty-five (45) day period.

The documentation submitted by the Permittee does not require certification by the "authorized individual" as defined by 326 IAC 2-1.1-1.

### **Compliance Monitoring Requirements**

#### **C.10 Compliance Monitoring [326 IAC 2-7-5(3)] [326 IAC 2-7-6(1)]**

Compliance with applicable requirements shall be documented as required by this approval. All monitoring and record keeping requirements not already legally required shall be implemented within ninety (90) days of approval issuance. The Permittee shall be responsible for installing any necessary equipment and initiating any required monitoring related to that equipment. If due to circumstances beyond its control, that equipment cannot be installed and operated within ninety (90) days, the Permittee may extend the compliance schedule related to the equipment for an additional ninety (90) days provided the Permittee notifies:

Indiana Department of Environmental Management  
Compliance Branch, Office of Air Management  
100 North Senate Avenue, P. O. Box 6015  
Indianapolis, Indiana 46206-6015

and

Vigo County Air Pollution Control  
103 South 3<sup>rd</sup> Street  
Terre Haute, Indiana 47807

in writing, prior to the end of the initial ninety (90) day compliance schedule, with full justification of the reasons for the inability to meet this date.

The notification which shall be submitted by the Permittee does require the certification by the "responsible official" as defined by 326 IAC 2-7-1(34).

#### **C.11 Maintenance of Monitoring Equipment [326 IAC 2-7-5(3)(A)(iii)]**

- (a) In the event that a breakdown of the monitoring equipment occurs, a record shall be made of the times and reasons of the breakdown and efforts made to correct the problem. To the extent practicable, supplemental or intermittent monitoring of the parameter should be implemented at intervals no less frequent than required in Section D of this approval until such time as the monitoring equipment is back in operation. In the case of continuous monitoring, supplemental or intermittent monitoring of the parameter should be implemented at intervals no less than one (1) hour until such time as the continuous monitor is back in operation.
- (b) The Permittee shall install, calibrate, quality assure, maintain, and operate all necessary monitors and related equipment as specified in Section D. In addition, prompt corrective action shall be initiated whenever indicated.

**C.12 Maintenance of Monitoring Equipment [326 IAC 2-7-5(3)(A)(iii)]**

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- (a) In the event that a breakdown of the monitoring equipment occurs, a record shall be made of the times and reasons of the breakdown and efforts made to correct the problem.
- (b) In the case of continuous opacity monitoring, whenever the continuous opacity monitor is malfunctioning or will be down for repairs or adjustments for a period of four (4) hours or more, visible emission readings should be performed in accordance with 40 CFR 60, Appendix A, Method 9, beginning four (4) hours after the start of the malfunction or down time for a minimum of one (1) hour.
- (c) If the reading period begins less than one hour before sunset, readings shall be performed until sunset. If the first required reading period would occur between sunset and sunrise, the first reading shall be performed as soon as there is sufficient daylight.
- (d) Method 9 opacity readings shall be repeated for a minimum of one (1) hour at least once every four (4) hours during daylight operations, until such time that the continuous opacity monitor is back in operation.
- (e) The opacity readings during this period shall be reported in the quarterly Compliance Monitoring Reports, unless there are ANY observed six minute averaged exceedances, in which case, these shall be reported to the air compliance inspector within four (4) working hours.
- (f) The Permittee shall install, calibrate, quality assure, maintain, and operate all necessary monitors and related equipment. In addition, prompt corrective action shall be initiated whenever indicated.

**Corrective Actions and Response Steps [326 IAC 2-7-5][326 IAC 2-7-6]**

**C.13 Compliance Monitoring Plan - Failure to Take Response Steps [326 IAC 2-7-5][326 IAC 2-7-6][326 IAC 1-6]**

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- (a) The Permittee is required to implement a compliance monitoring plan to ensure that reasonable information is available to evaluate its continuous compliance with applicable requirements. This compliance monitoring plan is comprised of:
  - (1) This condition;
  - (2) The Compliance Determination Requirements in Section D of this permit;
  - (3) The Compliance Monitoring Requirements in Section D of this permit;
  - (4) The Record Keeping and Reporting Requirements in Section C (Monitoring Data Availability, General Record Keeping Requirements, and General Reporting Requirements) and in Section D of this permit; and

- (5) A Compliance Response Plan (CRP) for each compliance monitoring condition of this permit. CRP's shall be submitted to IDEM, OAM and VCAPC upon request and shall be subject to review and approval by IDEM, OAM and VCAPC. The CRP shall be prepared within ninety (90) days after issuance of this permit by the Permittee and maintained on site, and is comprised of :
  - (A) Response steps that will be implemented in the event that compliance related information indicates that a response step is needed pursuant to the requirements of Section D of this permit; and
  - (B) A time schedule for taking such response steps including a schedule for devising additional response steps for situations that may not have been predicted.
- (b) For each compliance monitoring condition of this permit, appropriate response steps shall be taken when indicated by the provisions of that compliance monitoring condition. Failure to perform the actions detailed in the compliance monitoring conditions or failure to take the response steps within the time prescribed in the Compliance Response Plan, shall constitute a violation of the permit unless taking the response steps set forth in the Compliance Response Plan would be unreasonable.
- (c) After investigating the reason for the excursion, the Permittee is excused from taking further response steps for any of the following reasons:
  - (1) The monitoring equipment malfunctioned, giving a false reading. This shall be an excuse from taking further response steps providing that prompt action was taken to correct the monitoring equipment.
  - (2) The Permittee has determined that the compliance monitoring parameters established in the permit conditions are technically inappropriate, has previously submitted a request for an administrative amendment to the permit, and such request has not been denied or;
  - (3) An automatic measurement was taken when the process was not operating; or
  - (4) The process has already returned to operating within "normal" parameters and no response steps are required.
- (d) Records shall be kept of all instances in which the compliance related information was not met and of all response steps taken. In the event of an emergency, the provisions of 326 IAC 2-7-16 (Emergency Provisions) requiring prompt corrective action to mitigate emissions shall prevail.

C.14 Actions Related to Noncompliance Demonstrated by a Stack Test [326 IAC 2-7-5]  
[326 IAC 2-7-6]

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- (a) When the results of a stack test performed in conformance with Section C - Performance Testing, of this permit exceed the level specified in any condition of this permit, the Permittee shall take appropriate corrective actions. The Permittee shall submit a description of these corrective actions to IDEM, OAM and VCAPC, within thirty (30) days of receipt of the test results. The Permittee shall take appropriate action to minimize emissions from the affected emissions unit while the corrective actions are being implemented. IDEM, OAM and VCAPC shall notify the Permittee within thirty (30) days, if the corrective actions taken are deficient. The Permittee shall submit a description of additional corrective actions taken to IDEM, OAM and VCAPC within thirty (30) days of receipt of the notice of deficiency. IDEM, OAM and VCAPC reserve the authority to use enforcement activities to resolve noncompliant stack tests.

- (b) A retest to demonstrate compliance shall be performed within one hundred twenty (120) days of receipt of the original test results. Should the Permittee demonstrate to IDEM, OAM and VCAPC that retesting in one-hundred and twenty (120) days is not practicable, IDEM, OAM and VCAPC may extend the retesting deadline. Failure of the second test to demonstrate compliance with the appropriate permit conditions may be grounds for immediate revocation of the permit to operate the affected emissions unit.

The documents submitted pursuant to this condition do not require the certification by the "responsible official" as defined by 326 IAC 2-7-1(34).

### **Record Keeping and Reporting Requirements**

#### **C.15 Monitoring Data Availability [326 IAC 2-7-6(1)] [326 IAC 2-7-5(3)]**

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- (a) With the exception of performance tests conducted in accordance with Section C-Performance Testing, all observations, sampling, maintenance procedures, and record keeping, required as a condition of this permit shall be performed at all times the equipment is operating at normal representative conditions.
- (b) As an alternative to the observations, sampling, maintenance procedures, and record keeping of subsection (a) above, when the equipment listed in Section D of this permit is not operating, the Permittee shall either record the fact that the equipment is shut down or perform the observations, sampling, maintenance procedures, and record keeping that would otherwise be required by this permit.
- (c) If the equipment is operating but abnormal conditions prevail, additional observations and sampling should be taken with a record made of the nature of the abnormality.
- (d) If for reasons beyond its control, the operator fails to make required observations, sampling, maintenance procedures, or record keeping, reasons for this must be recorded.
- (e) At its discretion, IDEM and VCAPC may excuse such failure providing adequate justification is documented and such failures do not exceed five percent (5%) of the operating time in any quarter.
- (f) Temporary, unscheduled unavailability of staff qualified to perform the required observations, sampling, maintenance procedures, or record keeping shall be considered a valid reason for failure to perform the requirements stated in (a) above.

#### **C.16 General Record Keeping Requirements [326 IAC 2-7-5(3)] [326 IAC 2-7-6]**

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- (a) Records of all required monitoring data and support information shall be retained for a period of at least five (5) years from the date of monitoring sample, measurement, report, or application. These records shall be kept at the source location for a minimum of three (3) years and available upon the request of an IDEM, OAM and VCAPC, representative. The records may be stored elsewhere for the remaining two (2) years as long as they are available upon request. If the Commissioner or VCAPC make a written request for records to the Permittee, the Permittee shall furnish the records to the Commissioner or VCAPC within a reasonable time.

- (b) Records of required monitoring information shall include, where applicable:
  - (1) The date, place, and time of sampling or measurements;
  - (2) The dates analyses were performed;
  - (3) The company or entity performing the analyses;
  - (4) The analytic techniques or methods used;
  - (5) The results of such analyses; and
  - (6) The operating conditions existing at the time of sampling or measurement.
- (c) Support information shall include, where applicable:
  - (1) Copies of all reports required by this permit;
  - (2) All original strip chart recordings for continuous monitoring instrumentation;
  - (3) All calibration and maintenance records;
  - (4) Records of preventive maintenance shall be sufficient to demonstrate that failure to implement the Preventive Maintenance Plan did not cause or contribute to a violation of any limitation on emissions or potential to emit. To be relied upon subsequent to any such violation, these records may include, but are not limited to: work orders, parts inventories, and operator's standard operating procedures. Records of response steps taken shall indicate whether the response steps were performed in accordance with the Compliance Response Plan required by Section C - Compliance Monitoring Plan - Failure to take Response Steps, of this permit, and whether a deviation from a permit condition was reported. All records shall briefly describe what maintenance and response steps were taken and indicate who performed the tasks.
- (d) All record keeping requirements not already legally required shall be implemented when operation begins .

**C.17 General Reporting Requirements [326 IAC 2-7-5(3)]**

- (a) The reports required by conditions in Section D of this approval shall be submitted to:

Indiana Department of Environmental Management  
Compliance Data Section, Office of Air Management  
100 North Senate Avenue, P. O. Box 6015  
Indianapolis, Indiana 46206-6015

And

Vigo County Air Pollution Control  
103 South 3<sup>rd</sup> Street  
Terre Haute, Indiana 47807

- (b) Unless otherwise specified in this approval, any notice, report, or other submission required by this approval shall be considered timely if the date postmarked on the envelope or certified mail receipt, or affixed by the shipper on the private shipping receipt, is on or before the date it is due. If the document is submitted by any other means, it shall be considered timely if received by IDEM, OAM and VCAPC, on or before the date it is due.

- (c) Unless otherwise specified in this approval, any quarterly report shall be submitted within thirty (30) days of the end of the reporting period. The report does not require the certification by the "responsible official" as defined by 326 IAC 2-7-1(34).
- (d) The first report shall cover the period commencing on the date of issuance of this approval and ending on the last day of the reporting period.



## SECTION D.1

## EMISSIONS UNIT OPERATION CONDITIONS

Boiler, identified as unit 1C, with a nominal maximum capacity of 397.8 million BTU per hour, using low NOx burners with flue gas recirculation as control, and exhausting to stack 1C.

Fuel preheater, identified as Unit 1E, with a nominal maximum capacity of 7.13 million BTU per hour, using a low emission rate burner (described by the manufacturer as “moderate” instead of “standard”) or equivalent for control, and exhausting to stack 1E.

(The information describing the process contained in this emissions unit description box is descriptive information and does not constitute enforceable conditions)

### Emission Limitations and Standards

#### D.1.1 General Provisions Relating to NSPS [326 IAC 12][40 CFR 60, Subpart A]

The provisions of 40 CFR Part 60, Subpart A - General Provisions, which are incorporated under 326 IAC 12, apply to the boiler (Unit 1C) except when otherwise specified in 40 CFR Part 60, Subpart Da.

#### D.1.2 NSPS Particulate Matter Standard [326 IAC 12][40 CFR 60, Subpart Da, 60.42a(a)(1)][326 IAC 6-2-4]

Pursuant to 40 CFR 60.42a(a)(1) the particulate matter emissions from the boiler (Unit 1C) shall not exceed 0.03 lb/million BTU heat input.

Compliance with this provision also constitutes compliance with the provisions of 326 IAC 6-2-4 (Particulate Matter Limitations for Sources of Indirect Heating)

#### D.1.3 NSPS Opacity Standard [326 IAC 12][40 CFR 60, Subpart Da, 60.42a(b)]

Pursuant to 40 CFR 60.42a(b) the opacity from the boiler (Unit 1C) stack shall not exceed 20 percent opacity (6-minute average), with the exception of one 6-minute period per hour of not more than 27 percent opacity.

#### D.1.4 NSPS Sulfur Dioxide Standard [326 IAC 12][40 CFR 60, Subpart Da, 60.43a(b) and 60.43a(g)]

Pursuant to 40 CFR 60.43a(b) the sulfur dioxide emissions from the boiler (Unit 1C) shall not exceed: 100 percent of the potential combustion concentration (zero percent reduction) when emissions are less than 0.20 lb/million BTU heat input.

Pursuant to 40 CFR 60.43a(g), compliance with the emission limitation requirement is on a 30-day rolling average basis.

#### D.1.5 NSPS Nitrogen Oxides Standard [326 IAC 12][40 CFR 60, Subpart Da, 60.44a(a)]

Pursuant to 40 CFR 60.44a(a) the nitrogen oxides emission from the boiler (Unit 1C) shall not exceed:

- (1) 0.20 lb/million BTU heat input, and
- (2) 25 percent reduction of potential combustion concentration.

#### D.1.6 CO Emission Limitations [326 IAC 2-2]

The emissions of CO from the Boiler (Unit 1C) and the Fuel Preheater (Unit 1E) shall be less than 100 tons per twelve (12) consecutive months, rolled on a monthly basis. Therefore, the Prevention of Significant Deterioration (PSD) rules, 326 IAC 2-2 and 40 CFR 52.21, will not apply.

**D.1.7 Preventive Maintenance Plan [326 IAC 1-6-3]**

A Preventive Maintenance Plan, in accordance with Section C - Preventive Maintenance Plan, of this permit, is required for this emissions unit and any control devices.

**Compliance Determination Requirements**

**D.1.8 NSPS Compliance Provisions [326 IAC 12][40 CFR 60, Subpart Da, 60.46a]**

- (a) Pursuant to 40 CFR 60.46a(b), compliance with the nitrogen oxides emission limit under Condition D.1.5(1) above shall constitute compliance with the percent reduction requirements under Condition D.1.5(2).
- (b) Pursuant to 40 CFR 60.46a(c), the particulate matter standard under Condition D.1.2 and the nitrogen oxides standard under Condition D.1.5 apply at all times except during periods of startup, shutdown or malfunction. The sulfur dioxide standard under Condition D.1.4 applies at all times except during periods of startup, shutdown, or when both emergency conditions exist and the procedures under 40 CFR 60.46a(d) are implemented.
- (c) Pursuant to 40 CFR 60.46a(e), the sulfur dioxide emission limitation in Condition D.1.4 and the nitrogen oxides emission limitations in Condition D.1.5 are based on the average emission rate for 30 successive boiler operating days. A separate performance test is completed at the end of each boiler operating day (after the initial performance test), and a new 30-day average is calculated to show compliance.
- (d) Pursuant to 40 CFR 60.46a(g), compliance is determined by calculating the arithmetic average of all hourly emission rates for SO<sub>2</sub> and NO<sub>x</sub> for the 30 successive boiler operating days, except for data obtained during startup, shutdown, malfunction (NO<sub>x</sub> only), or emergency conditions (SO<sub>2</sub> only).
- (e) Pursuant to 40 CFR 60.46a(h), if the Permittee has not obtained the minimum quantity of emission data (specified under 40 CFR 60.47a and Condition D.1.10), compliance may be determined by following the procedures in section 7 of Method 19.

**D.1.9 NSPS Compliance Determination Procedures and Methods [326 IAC 12][40 CFR 60.48a]**

Pursuant to 40 CFR 60.48a, the Permittee shall use methods and procedures in Appendix A of 40 CFR 60 in order to properly conduct the performance tests required under 40 CFR 60.8. (Section 60.8(f) does not apply for SO<sub>2</sub> and NO<sub>x</sub> in this case). The procedures, along with acceptable alternative methods are as follows:

- (a) The Permittee shall determine compliance with the particulate matter standards under Condition D.1.2 and the opacity standards under Condition D.1.3 as follows:
  - (1) The dry basis F factor (O<sub>2</sub>) procedures in Method 19 shall be used to compute the emission rate of particulate matter.
  - (2) For the particulate matter concentration, Method 5 shall be used at affected facilities without wet FGD systems and Method 5B shall be used after wet FGD systems.
    - (i) The sampling time and sample volume for each run shall be at least 120 minutes and 1.70 dscm (60 dscf). The probe and filter holder heating system in the sampling train may be set to provide an average gas temperature of no greater than 160±14 EC (320±25 EF).

- (ii) For each particulate run, the emission rate correction factor, integrated or grab sampling and analysis procedures of Method 3B shall be used to determine the O<sub>2</sub> concentration. The O<sub>2</sub> sample shall be obtained simultaneously with, and at the same traverse points as, the particulate run. If the particulate run has more than 12 traverse points, the O<sub>2</sub> traverse points may be reduced to 12 provided that Method 1 is used to locate the 12 O<sub>2</sub> traverse points. If the grab sampling procedure is used, the O<sub>2</sub> concentration for the run shall be the arithmetic mean of all the individual O<sub>2</sub> concentrations at each traverse point.
- (3) Method 9 and the procedures in § 60.11 shall be used to determine opacity.
- (b) The Permittee shall determine compliance with the sulfur dioxide standard in Condition D.1.4 as follows:
  - (1) The appropriate procedures from Method 19 shall be used to determine the emission rate.
- (c) The Permittee shall determine compliance with the nitrogen oxides standard in Condition D.1.5 as follows:
  - (1) The appropriate procedures in Method 19 shall be used to determine the emission rate of NO<sub>x</sub>.
  - (2) The continuous monitoring system in § 60.47a (c) and (d) shall be used to determine the concentrations of NO<sub>x</sub> and CO<sub>2</sub> or O<sub>2</sub>.
- (d) The Permittee may use the following alternative methods and procedures, as applicable:
  - (1) For Method 5 or 5B, Method 17 may be used at facilities with or without wet FGD systems if the stack temperature at the sampling location does not exceed an average temperature of 160 EC (320 EF). The procedures of §§ 2.1 and 2.3 of Method 5B may be used in Method 17 only if it is used after wet FGD systems. Method 17 shall not be used after wet FGD systems if the effluent is saturated or laden with water droplets.
  - (2) The Fc factor (CO<sub>2</sub>) procedures in Method 19 may be used to compute the emission rate of particulate matter under the stipulations of § 60.46(d)(1). The CO<sub>2</sub> shall be determined in the same manner as the O<sub>2</sub> concentration.

D.1.10 Testing Requirements [326 IAC 3-6][40 CFR 60.46a(e)]

- (a) Pursuant to 40 CFR 60.46a(e), for the initial performance test required under § 60.8, compliance with the sulfur dioxide emission limitation under Condition D.1.4 and the nitrogen oxides emission limitation under Condition D.1.5 is based on the average emission rates for the first 30 successive boiler operating days. The initial performance test is the only test in which at least 30 days prior notice is required unless otherwise specified by the administrator. The initial performance test is to be scheduled so that the first boiler operating day of the 30 successive boiler operating days is completed within 60 days after achieving the maximum production rate at which the affected facility will be operated, but not later than 180 days after initial startup of the facility.
- (b) Pursuant to 326 IAC 3-5, the Permittee shall conduct a performance test on the Boiler (Unit 1C) stack in order to certify the continuous emission monitoring system for CO.
- (c) In addition to these requirements, IDEM and VCAPC may require additional compliance testing when necessary to determine if the emissions unit is in compliance.

**Compliance Monitoring Requirements [326 IAC 2-5.1-3(e)(2)] [ 326 IAC 2-6.1-5(a)(2)]**

**D.1.11 NSPS Emission Monitoring [326 IAC 12][40 CFR 60.47a]**

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- (a) Pursuant to 40 CFR 60.47a(c), the Permittee shall install, calibrate, maintain, and operate a continuous monitoring system for measuring nitrogen oxide emissions discharged to the atmosphere. The output of this monitoring system shall be recorded.
- (b) Pursuant to 40 CFR 60.47a(d), the Permittee shall, at the location where the nitrogen oxide monitor is, install, calibrate, maintain, and operate a continuous oxygen or carbon dioxide continuous monitoring system. The output of this monitoring system shall be recorded.
- (c) Pursuant to 40 CFR 60.47a(e), the monitoring systems specified above shall be operated (and data recorded) at all times, including periods of startup, shutdown, malfunction, or emergency conditions, except for continuous monitoring system breakdowns, repairs, calibration checks, and zero and span adjustments.
- (d) Pursuant to 40 CFR 60.47a(f), the Permittee shall obtain emission data for at least 18 hours in at least 22 out of 30 successive boiler operating days. If this minimum data requirements is not met with a continuous emission monitoring system, the Permittee shall supplement emission data with other monitoring systems approved by IDEM, OAM and VCAPC or the reference methods below.
  - (a) Pursuant to 40 CFR 60.47a(h), when it become necessary to supplement continuous monitoring system data to meet the minimum data requirements, the Permittee shall use the following reference methods:
    - (a) Method 7 shall be used to determine the NO<sub>x</sub> concentration at the same location as the NO<sub>x</sub> monitor. Samples shall be taken at 30-minute intervals. The arithmetic average of two consecutive samples represents a 1-hour average.
    - (b) The emission rate correction factor, integrated bag sampling and analysis procedure of Method 3B shall be used to determine the O<sub>2</sub> or CO<sub>2</sub> concentration at the same location as the O<sub>2</sub> or CO<sub>2</sub> monitor. Samples shall be taken for at least 30 minutes in each hour. Each sample represents a 1-hour average.
    - (c) The procedure in Method 19 shall be used to compute each 1-hour average concentration in ng/J (lb/million BTU) heat input.
  - (b) Pursuant to 40 CFR 60.47a(j), the following alternatives to the reference methods and procedures may be used:
    - (a) For Method 7, Method 7A, 7C, 7D, or 7E may be used. If Method 7C, 7D, or 7E is used, the sampling time for each run shall be 1-hour.
    - (b) For Method 3, Method 3A or 3B may be used if the sampling time is 1 hour.
    - (c) For Method 3B, Method 3A may be used.
- (e) Pursuant to 40 CFR 60.47a(g), the 1-hour averages are used to calculate average emission rates under the Compliance Provisions section above. The 1-hour averages are calculated using the data points required under 40 CFR 60.13(b). At least two data points must be used to calculate the 1-hour averages.
- (f) Pursuant to 40 CFR 60.47a(i) the Permittee shall use the following methods and procedures to conduct monitoring system performance evaluations under 40 CFR 60.13(c) and calibration checks under 40 CFR 60.13(d). Acceptable alternative methods and procedures are given in paragraph (d)(2) of this Condition.
  - (a) Methods 6, 7, and 3B, as applicable, shall be used to determine O<sub>2</sub>, SO<sub>2</sub>, and NO<sub>x</sub> concentrations.

- (b) SO<sub>2</sub> or NO<sub>x</sub> (NO), as applicable, shall be used for preparing the calibration gas mixtures (in N<sub>2</sub>, as applicable) under Performance Specification 2 of Appendix B of this part.
- (c) The span value for a continuous monitoring system measuring nitrogen oxides is 500 ppm.

#### D.1.12 Continuous Emission Monitoring System (CEMS) [326 IAC 3-5]

- (a) Pursuant to 326 IAC 3-5-1(d)(1), the Permittee with an emission limitation or permit requirement established under 326 IAC 2-1-3(i)(8) shall be required to install, calibrate, certify, operate and maintain a continuous monitoring system for measuring emissions rates (for CO in this case) in pounds per hour from stack 1C in accordance with 326 IAC 3-5-2 and 326 IAC 3-5-3.
- (b) The emissions from the fuel preheater (Unit 1E) shall be estimated by utilizing the potential emissions (determined using the manufacturer's maximum emission rate, see calculations on Page 2 of 6 of TSD Appendix A)
- (c) The Permittee shall submit to IDEM, OAM and VCAPC, within ninety (90) days after monitor installation, a complete written continuous monitoring standard operating procedure (SOP), in accordance with the requirements of 326 IAC 3-5-4.
- (d) The Permittee shall record the output of the system and shall perform the required record keeping, pursuant to 326 IAC 3-5-6, and reporting, pursuant to 326 IAC 3-5-7.
- (e) In instances of downtime, the Permittee shall use the manufacturer's maximum emission rate to demonstrate compliance with the limits established in Condition D.1.6.
- (f) After twelve (12) consecutive months of operation, the Permittee may submit to OAM and VCAPC alternative emission factors and their corresponding operating parameters to use in lieu of the manufacturer's emission rates in instances of downtime. The alternative emissions factors must be approved by OAM and VCAPC prior to use in calculating emissions for the limitations established in this construction permit. The alternative emission factors shall be based upon collected monitoring and/or approved performance tests. In the event that the information submitted does not contain sufficient data to establish appropriate emission factors, the Permittee shall continue to collect data until appropriate emission factors can be established. During this period of time, the Permittee shall continue to use the manufacturer's maximum emission rates in periods of downtime.

#### **Record Keeping and Reporting Requirements [326 IAC 2-5.1-3(e)(2)] [ 326 IAC 2-6.1-5(a)(2)]**

#### D.1.13 Record Keeping Requirements

- (a) To document compliance with Condition D.1.6, the Permittee shall maintain records required under 326 IAC 3-5-6 at the source in a manner so they may be inspected by IDEM, OAM, VCAPC, or the US EPA, if so requested or required.
- (b) To document compliance with Conditions D.1.2, D.1.3, D.1.4, D.1.5, D.1.8, D.1.9, and D.1.10, the Permittee shall maintain sufficient records to comply with the NSPS Reporting Requirements outlined in Condition D.1.14 of this section.
- (c) To document compliance with Condition D.1.7, copies of all inspections (including date and initials of the person performing them) and documentation of any corrective action initiated as a result of those inspections shall be maintained on site.

- (d) All records shall be maintained in accordance with Section C - General Record Keeping Requirements, of this permit.

D.1.14 NSPS Reporting Requirements [326 IAC 12][40 CFR 60.49a]

Pursuant to 40 CFR 60.49a, the Permittee shall report the following:

- (a) For sulfur dioxide, nitrogen oxides, and particulate matter emissions, the performance test data from the initial performance test and from the performance evaluation of the continuous monitors are submitted to the IDEM, OAM and VCAPC.
- (b) For sulfur dioxide and nitrogen oxides the following information is reported to the IDEM, OAM and VCAPC for each 24-hour period.
  - (1) Calendar Date;
  - (2) The average sulfur dioxide and nitrogen oxide emission rates (ng/J or lb/million BTU) for each 30 successive boiler operating days, ending with the last 30-day period in the quarter; reasons for non-compliance with the emission standards; and, description of corrective actions taken;
  - (3) Identification of the boiler operating days for which pollutant or diluent data have not been obtained for at least 18 hours of operation of the facility; justification for not obtaining sufficient data; and description of corrective actions taken;
  - (4) Identification of the times when emissions data have been excluded from the calculation of average emission rates because of startup, shutdown, malfunction (NO<sub>x</sub> only), emergency conditions (SO<sub>2</sub> only), or other reasons, and justification for excluding data for reasons other than startup, shutdown, malfunction, or emergency conditions;
  - (5) Identification of "F" factor used for calculations, method of determination, and type of fuel combusted;
  - (6) Identification of times when hourly averages have been obtained based on manual sampling methods;
  - (7) Identification of the times when the pollutant concentration exceeded full span of the continuous monitoring system; and
  - (8) Description of any modifications to the continuous monitoring system which could affect the ability of the continuous monitoring system to comply with Performance Specifications 2 or 3.
- (c) If the minimum quantity of emission data as required by Condition D.1.11(d) is not obtained for any 30 successive boiler operating days, the following information obtained under the requirements of D.1.7(e) is reported to the IDEM, OAM and VCAPC for that 30-day period:
  - (1) The number of hourly averages available for outlet emission rates ( $n_o$ ) and inlet emission rates ( $n_i$ ) as applicable;
  - (2) The standard deviation of hourly averages for outlet emission rates ( $s_o$ ) and inlet emission rates ( $s_i$ ) as applicable;
  - (3) The lower confidence limit for the mean outlet emission rates ( $E_o^*$ ) and the upper confidence limit for the mean inlet emission rate ( $E_i^*$ ) as applicable;
  - (4) The applicable potential combustion concentration; and
  - (5) The ratio of the upper confidence limit for the mean outlet emission rate ( $E_o^*$ ) and the allowable emission rate ( $E_{std}$ ) as applicable.
- (d) For any periods for which nitrogen oxides emissions data is not available, the owner or operator of the affected facility shall submit a signed statement indicating if any changes were made in operation of the emission control system during the period of data unavailability. Operations of the control system and affected facility during periods of data unavailability are to be compared with operation of the control system and affected facility before and following the period of data unavailability.

- (e) The Permittee shall submit a signed statement indicating whether:
  - (1) The required continuous monitoring system calibration, span, and drift checks or other periodic audits have or have not been performed as specified.
  - (2) The data used to show compliance was or was not obtained in accordance with approved methods and procedures of this part and is representative of plant performance.
  - (3) The minimum data requirements have or have not been met; or, the minimum data requirements have not been met for errors that were unavoidable.
  - (4) Compliance with the standards has or has not been achieved during the reporting period.
- (f) The Permittee shall submit the written reports required under this section and subpart A to the IDEM, OAM and VCAPC for every calendar quarter. All quarterly reports shall be postmarked by the 30<sup>th</sup> day following the end of each calendar quarter.

#### D.1.15 Reporting Requirements

- (a) The Permittee shall submit a quarterly excess emissions report, if applicable, based on the continuous emissions monitor (CEM) data for CO, pursuant to 326 IAC 3-5-7. These reports shall be submitted within thirty (30) calendar days following the end of each calendar quarter and in accordance with Section C - General Reporting Requirements of this permit.
- (b) A quarterly summary of the information to document compliance with Condition D.1.6 and D.1.12 shall be submitted to the addresses listed in Section C - General Reporting.
- (c) The natural gas fired boiler certification, shall be submitted quarterly to the address listed in Section C - General Reporting Requirements, using the reporting forms located at the end of this permit, or their equivalent, within thirty (30) days after the end of the quarter being reported.

## SECTION D.2

## EMISSIONS UNIT OPERATION CONDITIONS

Combustion Turbine, identified as unit 1A, with a nominal maximum capacity of 1709.1 million BTU per hour, utilizing syngas (combined cycle mode) or natural gas (either combined cycle or simple cycle mode) for fuel, using steam injection for control, and exhausting to stack 1A (combined cycle mode) or 1D (simple cycle mode).

(The information describing the process contained in this emissions unit description box is descriptive information and does not constitute enforceable conditions)

### Emission Limitations and Standards

#### D.2.1 General Provisions Relating to NSPS [326 IAC 12][40 CFR 60, Subpart A]

The provisions of 40 CFR Part 60, Subpart A - General Provisions, which are incorporated under 326 IAC 12, apply to the combustion turbine (Unit 1A) except when otherwise specified in 40 CFR Part 60, Subpart GG.

#### D.2.2 NSPS Nitrogen Oxide Standard [326 IAC 12][40 CFR 60.332]

Pursuant to 40 CFR 60.332(a)(1) and 40 CFR 60.332(b) the Permittee shall not allow to be discharged into the atmosphere, any gases which contain nitrogen oxides in excess of:

$$\text{STD} = 0.0075 \cdot (14.4/Y) + F$$

where:

- STD = allowable NO<sub>x</sub> emissions (percent by volume at 15 percent oxygen and on a dry basis);
- Y = manufacturer's rated heat rate at manufacturer's rated load (kilojoules per watt hour) or, actual measured heat rate based on lower heating value of fuel as measured at peak load for the facility; and
- F = NO<sub>x</sub> emission allowance for fuel-bound nitrogen as defined in paragraph (a)(3) of 40 CFR 60.332.

Exemptions:

- (a) Pursuant to 40 CFR 60.332(f), stationary gas turbines using water or steam injection for control of NO<sub>x</sub> emissions are exempt from the nitrogen oxide standard when ice fog is deemed a traffic hazard by the Permittee.
- (b) Pursuant to 40 CFR 60.332(i), exemptions from the nitrogen oxide standard may be granted on a case-by-case basis in specific geographical areas where mandatory water restrictions are required by governmental agencies because of draught conditions. These exemptions will be allowed only while the mandatory water restrictions are in effect.

#### D.2.3 Nitrogen Oxide Emission Limitation

Pursuant to CP 167-2610-00021 (Issued May 27, 1993), the nitrogen oxides (NO<sub>x</sub>) emissions from the gas turbine shall not exceed 25 ppmdv at 15 percent oxygen for syngas or natural gas combustion. This limit will satisfy the NSPS standard in Condition D.2.2 above.

#### D.2.4 NSPS Standard for Sulfur Dioxide [326 IAC 12][40 CFR 60.333]

Pursuant to 40 CFR 60.333, the Permittee shall comply with one of the two following requirements:



- (c) The Permittee shall not discharge into the atmosphere from any stationary gas turbine any gases which contain sulfur dioxide in excess of 0.015 percent by volume at 15% oxygen and on a dry basis; OR
- (d) The Permittee shall not burn any fuel which contains sulfur in excess of 0.8 percent by weight.

**D.2.5 Carbon Monoxide BACT [326 IAC 2-2-3]**

Pursuant to CP 167-2610-00021 (Issued May 27, 1993), the best available control technology (BACT) for carbon monoxide shall be good combustion practices. CO emissions shall not exceed 15 ppm when burning syngas and 25 ppm when burning No. 2 backup oil corrected to 15% oxygen and 75% or greater load. The practice and instrumentation plan shall be submitted to the VCAPCD along with the methods and parameters which are based on test results to ensure continued compliance.

**D.2.6 Sulfuric Acid Mist BACT [326 IAC 2-2-3]**

Pursuant to CP 167-2610-00021 (Issued May 27, 1993), the best available control technology (BACT) for sulfuric acid mist shall be: a) 0.01 lb per million BTU by limiting the sulfur content of the syngas to 360 ppm or less as measured by a gas chromatograph, and b) design exit gas temperature from the HRSG to be at least 264 EF.

**D.2.7 Opacity Limitations**

Pursuant to CP 167-2610-00021 (Issued May 27, 1993), the opacity from the combustion turbine peaking unit shall be limited to 20 percent. During the first year of commercial operation of the combustion turbine, opacity during start-up shall be limited to 60 percent not to exceed 10 minutes per 24 hour period. PSI Energy may request a special exemption pursuant to 326 IAC 5-1-3(d) if proper operation of the turbine justifies such a request. Compliance shall be determined by continuous opacity monitoring in accordance with 40 CFR 75.14. Per 40 CFR 75.14(c), opacity monitoring is not required for simple cycle, natural gas only operation exhausting through stack 1D. Compliance data shall be submitted to the Vigo County Air Pollution Control Department (VCAPCD).

**D.2.8 Preventive Maintenance Plan**

A Preventive Maintenance Plan, in accordance with Section C - Preventive Maintenance Plan, of this permit, is required for this emissions unit and its control device.

**D.2.9 Unit 1 Removal**

Pursuant to CP 167-2610-00021 (Issued May 27, 1993), coal-fired boiler No. 1 (Unit 1) at the Wabash Generating Station shall be removed from service permanently by being removed or made inoperative by other means. This boiler was removed from service on December 31, 1994.

**Compliance Determination Requirements**

**D.2.10 NSPS Test Methods and Procedures [326 IAC 12][40 CFR 60.335]**

- (a) Pursuant to 40 CFR 60.335(a), the Permittee shall use analytical methods and procedures that are accurate to within 5 percent and are approved by the IDEM, OAM and VCAPC to determine the nitrogen content of the fuel being fired.
- (b) Pursuant to 40 CFR 60.335(b), the Permittee, in conducting the performance tests required in 40 CFR 60.8, shall use as reference methods and procedures the test methods in appendix A of this part or other methods and procedures as specified in this section, except as provided for in 40 CFR 60.8(b). Acceptable alternative methods and procedures are given in paragraph (f) of this Condition.

- (c) Pursuant to 40 CFR 60.335(c), the Permittee shall determine compliance with the nitrogen oxides and sulfur dioxide standards in Condition D.2.2 and Condition D.2.3 as follows:
- (1) The nitrogen oxides emission rate ( $\text{NO}_x$ ) shall be computed for each run using the following equation:
- $$\text{NO}_x = (\text{NO}_{x0})(P_r/P_o)^{0.5} e^{19(H_o - 0.00633)(288K/T_a)} 1.53$$
- where:  $\text{NO}_x$  = emission rate of  $\text{NO}_x$  at 15 percent  $\text{O}_2$  and ISO standard conditions, volume percent;  
 $\text{NO}_{x0}$  = observed  $\text{NO}_x$  concentration, ppm by volume;  
 $P_r$  = reference combustor inlet absolute pressure at 101.3 kilopascals ambient pressure, mm Hg;  
 $P_o$  = observed combustor inlet absolute pressure at test, mm Hg;  
 $H_o$  = observed humidity of ambient air, g  $\text{H}_2\text{O}$ /g air;  
 $e$  = transcendental constant, 2.718; and  
 $T_a$  = ambient temperature, EK.
- (2) The monitoring device of Condition D.2.13 shall be used to determine the fuel consumption and the water-to-fuel ratio necessary to comply with Condition D.2.2 at 30, 50, 75, and 100 percent of peak load or at four points in the normal operating range of the gas turbine, including the minimum point in the range and peak load. All loads shall be corrected to ISO conditions using the appropriate equations supplied by the manufacturer.
- (3) Method 20 shall be used to determine the nitrogen oxides, sulfur dioxide, and oxygen concentrations. The span values shall be 300 ppm of nitrogen oxide and 21 percent oxygen. The  $\text{NO}_x$  emissions shall be determined at each of the load conditions specified in paragraph (c)(2) of this Condition.
- (d) Pursuant to 40 CFR 60.335(d), the owner or operator shall determine compliance with the sulfur content standard in Condition D.2.3 as follows: ASTM D 2880-71 shall be used to determine the sulfur content of liquid fuels and ASTM D 1072-80, D 3031-81, D 4084-82, or D 3246-81 shall be used for the sulfur content of gaseous fuels (incorporated by reference - see 40 CFR 60.17). The applicable ranges of some ASTM methods mentioned above are not adequate to measure the levels of sulfur in some fuel gases. Dilution of samples before analysis (with verification of the dilution ratio) may be used, subject to the approval of the IDEM, OAM and VCAPC.
- (e) Pursuant to 40 CFR 60.335(e), to meet the requirements of Condition D.2.13, the Permittee shall use the methods specified in paragraphs (a) and (b) of this Condition to determine the nitrogen and sulfur contents of the fuel being burned. The analysis may be performed by the Permittee, a service contractor retained by the Permittee, the fuel vendor, or any other qualified agency.
- (f) Pursuant to 40 CFR 60.335(f) the Permittee may use the following alternatives to the reference methods and procedures specified in this condition: Instead of using the equation in paragraph (b)(1) of this Condition, manufacturers may develop ambient condition correction factors to adjust the nitrogen oxides emission level measured by the performance test as provided in 40 CFR 60.8 to ISO standard day conditions. These factors are developed for each gas turbine model they manufacturer in terms of combustion inlet pressure, ambient air pressure, ambient air humidity, and ambient air temperature. They shall be substantiated with data and must be approved for use by the IDEM, OAM and VCAPC before the initial performance test required by 40 CFR 60.8. Notices of approval of custom ambient condition correction factors will be published in the Federal Register.

#### D.2.11 Testing Requirements [326 IAC 2-1.1-11]

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IDEM and VCAPC may require compliance testing when necessary to determine if the emissions unit is in compliance. If testing is required by IDEM and VCAPC, compliance with the nitrogen oxides limit specified in Conditions D.2.2 and D.2.3 or the sulfur dioxide limit specified in Condition D.2.4 shall be determined by a performance test conducted in accordance with Section C - Performance Testing.

### **Compliance Monitoring Requirements [326 IAC 2-5.1-3(e)(2)] [ 326 IAC 2-6.1-5(a)(2)]**

#### D.2.12 Nitrogen Oxide Controls

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Pursuant to CP 167-2610-00021 (Issued May 27, 1993), the steam injection shall be used to control nitrogen oxide emissions to the levels required in Condition D.2.2 and D.2.3. The proper steam injection ratios at various levels shall be determined during initial compliance testing (pursuant to 40 CFR 60.335) and an injection schedule shall be established and programed into the control system.

Since natural gas is a new fuel for this combustion turbine, a separate determination of the proper steam injection ratios (when utilizing natural gas) must be determined. If this determination yields a different injection schedule, then the alternate schedule must also be programmed into the control system for use when natural gas is the fuel instead of syngas.

The steam injection system shall be in service and operating at the appropriate rate whenever the turbine is in operation, except for the time specified for start-up and shutdown period.

#### D.2.13 NSPS Monitoring of Emissions [326 IAC 12][40 CFR 60.334]

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- (a) The Permittee shall install and operate a continuous monitoring system to monitor and record the fuel consumption and the ratio of water (steam) to fuel being fired in the turbine. This system shall be accurate to within 5.0 percent and shall be approved by IDEM, OAM and VCAPC.
- (b) The Permittee shall monitor sulfur content and nitrogen content of the fuel being fired in the turbine. The custom schedule for the combustion turbine shall be as follows:
  - (1) Monitor the natural gas combusted through the analysis of pipeline gas from the natural gas supplier. Gas samples shall be taken once a calendar quarter at the closest proximity to the site of the turbine. In the event of less than 30 days of the turbine operation in a quarter, the quarterly sampling is waived. For these purposes, one day of operation shall be defined as any day that gas is burned for more than one (1) hour. Quarterly sampling and analysis of the gas shall be performed according to ASTM methods in 40 CFR 60.335(a) and 60.335(d).
- (c) Periods of excess emissions that shall be reported are defined as follows:
  - (1) Nitrogen oxides. Any one-hour period during which the average water-to-fuel ratio, as measured by the continuous monitoring system, falls below the water-to-fuel ratio determined to demonstrate compliance with Condition D.2.2 by the performance test required in 40 CFR 60.8 or any period during which the fuel-bound nitrogen of the fuel is greater than the maximum nitrogen content allowed by the fuel-bound nitrogen allowance used during the performance test required in 40 CFR 60.8. Each report shall include the average water-to-fuel ratio, average fuel consumption, ambient conditions, gas turbine load, and nitrogen content of the fuel during the period of excess emissions, and the graphs or figures developed under § 60.335(a).
  - (2) Sulfur dioxide. Any daily period during which the sulfur content of the fuel being fired in the gas turbine exceeds 0.8 percent.
  - (3) Ice fog. Each period during which an exemption provided in Condition D.2.2 is in effect shall be reported in writing to the Administrator quarterly. For each

period the ambient conditions existing during the period, the date and time the air pollution control system was deactivated, and the date and time the air pollution control system was reactivated shall be reported. All quarterly reports shall be postmarked by the 30<sup>th</sup> day following the end of each calendar quarter.

## **Record Keeping and Reporting Requirements [326 IAC 2-5.1-3(e)(2)] [ 326 IAC 2-6.1-5(a)(2)]**

### **D.2.14 Record Keeping Requirements**

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- (a) To document compliance with Conditions D.2.2, D.2.3, and D.2.4 the Permittee shall maintain all records generated in accordance with Conditions D.2.9, D.2.10, D.2.11, and D.2.12 as a minimum.
- (b) To document compliance with Conditions D.2.5, D.2.6, D.2.7, and D.2.11 the Permittee shall maintain a log of information necessary. The information shall, as a minimum, contain the following information.
  - (1) The date, fuel, and times for all periods of turbine operation;
  - (2) The maximum load and corresponding steam to fuel ratio for each period of operation (including a comparison to the demonstrated proper injection rate for the specific fuel);
  - (3) The fuel type, consumption and actual ratio of steam to fuel during all periods of the turbine operation;
  - (4) The sulfur content of the fuel;
  - (5) The nitrogen content of each fuel being combusted (in percent by weight); and
  - (6) Periods of time visible emissions exceed 20 percent opacity.
- (c) All records shall be maintained in accordance with Section C - General Record Keeping Requirements, of this permit.

### **D.2.15 Reporting Requirements**

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- (a) The Permittee shall submit a quarterly excess emissions report, if applicable, based on any continuous emission monitor (CEM) or continuous opacity monitor (COM) required by this section, pursuant to 326 IAC 3-5-7. These reports shall be submitted within thirty (30) calendar days following the end of each calendar quarter and in accordance with Section C - General Reporting Requirements, of this permit.
- (b) The Permittee shall submit a quarterly summary of the information required by Condition D.2.13(b) above, to document compliance with Conditions D.2.5, D.2.6, D.2.7, and D.2.11. These reports shall be submitted within thirty (30) calendar days following the end of each calendar quarter and in accordance with Section C - General Reporting Requirements, of this permit.

**INDIANA DEPARTMENT OF ENVIRONMENTAL MANAGEMENT  
OFFICE OF AIR MANAGEMENT  
COMPLIANCE DATA SECTION**

**and  
VIGO COUNTY AIR POLLUTION CONTROL**

**PART 70 SOURCE MODIFICATION  
CERTIFICATION**

Source Name: PSI Energy, Inc. - Wabash River Generating Station  
Source Address: 445 Bolton Road, West Terre Haute, Indiana 47885  
Mailing Address: c/o Steven L. Pearl, 1000 East Main Street, Plainfield, IN 46168  
Source Modification No.: 167-11328-00021

**This certification shall be included when submitting monitoring, testing reports/results or other documents as required by this approval.**

Please check what document is being certified:

- 9 Test Result (specify) \_\_\_\_\_
- 9 Report (specify) \_\_\_\_\_
- 9 Notification (specify) \_\_\_\_\_
- 9 Other (specify) \_\_\_\_\_

I certify that, based on information and belief formed after reasonable inquiry, the statements and information in the document are true, accurate, and complete.

Signature: \_\_\_\_\_

Printed Name: \_\_\_\_\_

Title/Position: \_\_\_\_\_

Date: \_\_\_\_\_

**COMPLIANCE DATA SECTION  
and  
VIGO COUNTY AIR POLLUTION CONTROL**

**PART 70 OPERATING PERMIT  
NATURAL GAS FIRED BOILER CERTIFICATION**

Source Name: PSI Energy, Inc.  
Source Address: 445 Bolton Road, West Terre Haute, Indiana 47885  
Mailing Address: c/o Steven L. Pearl, 1000 East Main Street, Plainfield, IN 46168  
Source Modification No.: SSM 167-11328-00021

**This certification shall be included when submitting monitoring, testing  
reports/results  
or other documents as required by this permit.**

Report period

Beginning: \_\_\_\_\_

Ending: \_\_\_\_\_

Boiler Affected

Alternate Fuel

Days burning alternate fuel  
From To


I certify that, based on information and belief formed after reasonable inquiry, the statements and information in the document are true, accurate, and complete.

Signature: \_\_\_\_\_

Printed Name: \_\_\_\_\_

Title/Position: \_\_\_\_\_

Date: \_\_\_\_\_

**MALFUNCTION REPORT**

**INDIANA DEPARTMENT OF ENVIRONMENTAL MANAGEMENT  
OFFICE OF AIR MANAGEMENT  
FAX NUMBER - 317 233-5967**

**VIGO COUNTY AIR POLLUTION CONTROL  
FAX NUMBER 812 462-3447**

**This form should only be used to report malfunctions applicable to Rule 326 IAC 1-6  
and to qualify for the exemption under 326 IAC 1-6-4.**

THIS FACILITY MEETS THE APPLICABILITY REQUIREMENTS BECAUSE IT HAS POTENTIAL TO EMIT 25 TONS/YEAR PARTICULATE MATTER ?\_\_\_\_\_, 25 TONS/YEAR SULFUR DIOXIDE ?\_\_\_\_\_, 25 TONS/YEAR NITROGEN OXIDES?\_\_\_\_\_, 25 TONS/YEAR VOC ?\_\_\_\_\_, 25 TONS/YEAR HYDROGEN SULFIDE ?\_\_\_\_\_, 25 TONS/YEAR TOTAL REDUCED SULFUR ?\_\_\_\_\_, 25 TONS/YEAR REDUCED SULFUR COMPOUNDS ?\_\_\_\_\_, 25 TONS/YEAR FLUORIDES ?\_\_\_\_\_, 100TONS/YEAR CARBON MONOXIDE ?\_\_\_\_\_, 10 TONS/YEAR ANY SINGLE HAZARDOUS AIR POLLUTANT ?\_\_\_\_\_, 25 TONS/YEAR ANY COMBINATION HAZARDOUS AIR POLLUTANT ?\_\_\_\_\_, 1 TON/YEAR LEAD OR LEAD COMPOUNDS MEASURED AS ELEMENTAL LEAD ?\_\_\_\_\_, OR IS A SOURCE LISTED UNDER 326 IAC 2-5.1-3(2) ?\_\_\_\_\_. EMISSIONS FROM MALFUNCTIONING CONTROL EQUIPMENT OR PROCESS EQUIPMENT CAUSED EMISSIONS IN EXCESS OF APPLICABLE LIMITATION \_\_\_\_\_.

THIS MALFUNCTION RESULTED IN A VIOLATION OF: 326 IAC \_\_\_\_\_ OR, PERMIT CONDITION # \_\_\_\_\_ AND/OR PERMIT LIMIT OF \_\_\_\_\_

THIS INCIDENT MEETS THE DEFINITION OF 'MALFUNCTION' AS LISTED ON REVERSE SIDE ?    Y       N  
THIS MALFUNCTION IS OR WILL BE LONGER THAN THE ONE (1) HOUR REPORTING REQUIREMENT ?    Y       N

COMPANY: \_\_\_\_\_ PHONE NO. (    ) \_\_\_\_\_  
LOCATION: (CITY AND COUNTY) \_\_\_\_\_

PERMIT NO. \_\_\_\_\_ AFS PLANT ID: \_\_\_\_\_ AFS POINT ID: \_\_\_\_\_  
INSP: \_\_\_\_\_

CONTROL/PROCESS DEVICE WHICH MALFUNCTIONED AND REASON: \_\_\_\_\_

DATE/TIME MALFUNCTION STARTED: \_\_\_\_/\_\_\_\_/19\_\_\_\_    \_\_\_\_\_ AM / PM

ESTIMATED HOURS OF OPERATION WITH MALFUNCTION CONDITION: \_\_\_\_\_

DATE/TIME CONTROL EQUIPMENT BACK-IN SERVICE \_\_\_\_/\_\_\_\_/19\_\_\_\_    \_\_\_\_\_ AM/PM

TYPE OF POLLUTANTS EMITTED: TSP, PM-10, SO<sub>2</sub>, VOC, OTHER: \_\_\_\_\_

ESTIMATED AMOUNT OF POLLUTANT EMITTED DURING MALFUNCTION: \_\_\_\_\_

MEASURES TAKEN TO MINIMIZE EMISSIONS: \_\_\_\_\_

REASONS WHY FACILITY CANNOT BE SHUTDOWN DURING REPAIRS:

CONTINUED OPERATION REQUIRED TO PROVIDE ESSENTIAL\* SERVICES: \_\_\_\_\_

CONTINUED OPERATION NECESSARY TO PREVENT INJURY TO PERSONS: \_\_\_\_\_

CONTINUED OPERATION NECESSARY TO PREVENT SEVERE DAMAGE TO EQUIPMENT: \_\_\_\_\_

INTERIM CONTROL MEASURES: (IF APPLICABLE) \_\_\_\_\_

MALFUNCTION REPORTED BY: \_\_\_\_\_ TITLE: \_\_\_\_\_  
(SIGNATURE IF FAXED)

MALFUNCTION RECORDED BY: \_\_\_\_\_ DATE: \_\_\_\_\_ TIME: \_\_\_\_\_

\*SEE PAGE 2

**Please note - This form should only be used to report malfunctions  
applicable to Rule 326 IAC 1-6 and to qualify for  
the exemption under 326 IAC 1-6-4.**

**326 IAC 1-6-1 Applicability of rule**

Sec. 1. This rule applies to the owner or operator of any facility required to obtain a permit under 326 IAC 2-5.1 or 326 IAC 2-6.1.

**326 IAC 1-2-39 "Malfunction" definition**

Sec. 39. Any sudden, unavoidable failure of any air pollution control equipment, process, or combustion or process equipment to operate in a normal and usual manner.

**\*Essential services** are interpreted to mean those operations, such as, the providing of electricity by power plants. Continued operation solely for the economic benefit of the owner or operator shall not be sufficient reason why a facility cannot be shutdown during a control equipment shutdown.

If this item is checked on the front, please explain rationale:

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**Indiana Department of Environmental Management  
Office of Air Management  
and  
Vigo County Air Pollution Control**

Addendum to the  
Technical Support Document for the Significant Source Modification

<b>Source Name:</b>	<b>PSI Energy Inc., - Wabash River Generating Station</b>
<b>Source Location:</b>	<b>445 Bolton Road, West Terre Haute, IN 47885</b>
<b>County:</b>	<b>Vigo</b>
<b>SIC Code:</b>	<b>4911</b>
<b>Significant Source Mod No.:</b>	<b>T167-11328-00021</b>
<b>Permit Reviewer:</b>	<b>Rob Harmon</b>

On December 4, 1999, Vigo County Air Pollution Control (VCAPC) had a notice published in the Terre Haute Tribune Star located in Terre Haute, Indiana, stating that PSI Energy Inc. had applied for a Part 70 Significant Source Modification to construct and operate a fuel conversion project at their Wabash River Generating Station. The notice also stated that VCAPC proposed to issue a permit for this operation and provided information on how the public could review the proposed permit and other documentation. Finally, the notice informed interested parties that there was a period of thirty (30) days to provide comments on whether or not this permit should be issued as proposed.

On December 14, 1999, PSI Energy Inc. submitted comments on the proposed Part 70 significant source modification. The summary of the comments is as follows: (changes in Permit language are indicated with ~~strikeout~~ for deletions and **redline** for additions)

**Comment 1:**

Section A.1: Revise Mailing Address to "c/o Steven L. Pearl, 1000 East Main Street, Plainfield, Indiana 46168".

**Response to Comment 1:**

This change was made as requested.

**Comment 2:**

Section A.1: Revise Phone Number to "(317)838-1758 (contact) or (812)535-2451 (source)"

**Response to Comment 2:**

This change was made as requested.

**Comment 3:**

Section A.2 1.: Revise Boiler description to "... with a nominal maximum capacity...". As has often been stated, the actual maximum capacity of the equipment depends on many factors (fuel quality, ambient conditions, etc.) and will vary. The word "nominal" provides for the normal variability in maximum capacity.

**Response to Comment 3:**

The paragraph at the beginning of Section A already contains the following language "The information describing the source contained in conditions A.1 through A.3 is descriptive information and does not constitute enforceable conditions." So there should not be any interpretation problems. However, in order to allow the company to feel more comfortable the addition of the term "nominal" to this description, as well as several others has been made.

**Comment 4:**

Section A.2 2.: Revise Fuel Preheater description to "... with a nominal maximum capacity..."

**Response to Comment 4:**

See Response to Comment 3 above.

**Comment 5:**

Section A.2 3.: Revise Combustion Turbine description to "... with a nominal maximum capacity...".

**Response to Comment 5:**

See Response to Comment 3 above.

**Comment 6:**

Section C.5: The Opacity section has been a subject to the Part 70 permit discussions. Cinergy maintains that this section belongs in Section D as it applies to each of the permitted facilities, and not in Section C applicable to the entire source. We recommend the relocation of C.5 to Section D.

**Response to Comment 6:**

The applicability section of the Opacity Rule (326 IAC 5-1-1) states "This rule applies to opacity, not including condensed water vapor, emitted by or from a facility or source." This indicates that in fact the whole source is subject to the requirements, and therefore Section C would be the more appropriate location for the Condition. The source may submit a separate request with specific reasons for VCAPC and IDEM-OAM to evaluate at a later date.

**Comment 7:**

Section C.7: Revise condition to read "...all air pollution control equipment...shall be operated at all times that the emission units vented to the control equipment are in operation consistent with proper operation of equipment, and as described in Section D." The added phrase allows for times when operation of the control equipment may result in damage to the equipment, and allows for any exempt times which may be specified in Section D.

**Response to Comment 7:**

The conditions that can be allowed are already specified under the Malfunction / Emergency Conditions elsewhere in the permit. Therefore, this Condition needs to remain as stated.

**Comment 8:**

Section C.11: Revise first sentence to read "The Permittee shall install, calibrate, quality assure, maintain, and operate all necessary monitors and related equipment as specified in Section D. Adding the reference to section D defines what monitoring equipment is necessary.

**Response to Comment 8:**

This change has been made to Condition C.11.

**Comment 9:**

Section C.12: Section C.12 is an alternate version of C.11, some of which is irrelevant, and should be deleted in its entirety. C.12(a) and (f) are repetitive of C.11(a) and (b). C.12(b) through (e) refer to the breakdown of a continuous opacity monitor, and will be unnecessary with the conversion to natural gas combustion.

**Response to Comment 9:**

This condition is intended to supplement Condition C.11 with specific information for COMs. The permit contains a requirement to operate the COM while in combined cycle mode still, so this condition must remain in at this time.

**Comment 10:**

Section C.13: Consistent with Cinergy's position regarding Part 70 permits, we do not agree with the conditions relating to Compliance Monitoring Plans, and do not agree the authority is in the current regulations. We recommend deletion of this condition for the time being, resolution pending the outcome in the Part 70 permits.

**Response to Comment 10:**

The Compliance Monitoring Plan, Preventive Maintenance Plan, and Compliance Response Plan are collectively the mechanism each Permittee will use to demonstrate compliance with its permit and the applicable requirements contained within. These plans, while not specifically named, are supported under 326 IAC 2-7-5(1), 326 IAC 2-7-5(3), 2-7-5(13), and 2-7-6(1). Since IDEM and VCAPC believe these components are required by the rules and regulations, the condition will remain in the permit.

**Comment 11:**

Section C.16: Based on feedback from operating personnel regarding draft Part 70 permits, the Record Keeping Requirements in Section C are confusing when repeated in Section D. Based on this feedback, we recommend that C.16(a) and (d) be retained in Section C, and C.16(b) and (c) be eliminated from Section C and included in Section D.

**Response to Comment 11:**

The Record Keeping requirements in Section C are general. Specific requirements for each unit are contained in Section D. The requirements under Section C supplement those specific requirements. As such, any attempt to break this section up would require unwieldy repetition in each and every D Section. Even though this permit does not contain a large number of D Sections, your Part 70 permit probably will. It is normally a better practice to have consistency between the permits, so for both these reasons the condition remains as it was initially proposed. The source may submit a separate request with specific methods proposed for VCAPC and IDEM-OAM to evaluate at a later date.

**Comment 12:**

Section D.1.4: To simplify the permit, the limitation contained in D.1.4(1) should be eliminated. The 1C boiler will not have any sulfur dioxide removal capability, and will meet the 0.20 lb./mmBtu limit contained in (2) through the use of natural gas. The 0.80 lb./mmBtu limitation and 90% removal requirement are not applicable to this boiler and thus may be deleted.

**Response to Comment 12:**

The draft permit was prepared with the intention of providing all the options presented in the NSPS (Subpart Da in this case). Since PSI Energy is comfortable with only the specific options that will be utilized being listed in the permit, some extraneous language can be removed. In this case Condition D.1.4 has been modified as follows:

Pursuant to 40 CFR 60.43a(b) the sulfur dioxide emissions from the boiler (Unit 1C) shall not exceed:

- ~~———— (1) ——— 0.80 lb./million BTU heat input and 10 percent of the potential combustion concentration (90 percent reduction); or~~
- ~~———— (2) ——— 100 percent of the potential combustion concentration (zero percent reduction) when emissions are less than 0.20 lb./million BTU heat input.~~

Pursuant to 40 CFR 60.43a(g), compliance with the emission limitation ~~and percent reduction requirements~~ **is** ~~are both~~ determined on a 30-day rolling average basis.

**Comment 13:**

Section D.1.8(c): In the first sentence, the phrase "and percentage reduction requirements" should be eliminated since it is not applicable to this boiler.

**Response to Comment 13:**

For the same reason presented in the Response to Comment 12, Condition D.1.8(c) has been modified as follows:

Pursuant to 40 CFR 60.46a(e), the sulfur dioxide emission limitations ~~and percentage reduction requirements~~ in Condition D.1.4 and the nitrogen oxides emission limitations in Condition D.1.5 are based on the average emission rate for 30 successive boiler operating days. A separate performance test is completed at the end of each boiler operating day (after the initial performance

test), and a new 30-day average is calculated to show compliance.

**Comment 14:**

Section D.1.8(d): The last sentence beginning with "Compliance with the percentage reduction requirement..." should be eliminated since the boiler has no removal capabilities, and the reduction requirement is not applicable.

**Response to Comment 14:**

For the same reason presented in the Response to Comment 12, Condition D.1.8(d) has been modified as follows:

Pursuant to 40 CFR 60.46a(g), compliance is determined by calculating the arithmetic average of all hourly emission rates for SO<sub>2</sub> and NO<sub>x</sub> for the 30 successive boiler operating days, except for data obtained during startup, shutdown, malfunction (NO<sub>x</sub> only), or emergency conditions (SO<sub>2</sub> only). ~~Compliance with the percentage reduction requirement for SO<sub>2</sub> is determined based on the average inlet and average outlet SO<sub>2</sub> emission rates for the 30 successive boiler operating days.~~

**Comment 15:**

Section D.1.9(b)(1), (2) and (3): These three sections all relate to determination of compliance with the percent removal requirement which is not applicable to this boiler. These sections should be deleted.

**Response to Comment 15:**

For the same reason presented in the Response to Comment 12, Condition D.1.9(b) has been modified as follows: (Note - this condition was also affected by Response to Comment 16 and the version presented below contains both changes)

(b) The Permittee shall determine compliance with the sulfur dioxide standard in Condition D.1.4 as follows:

- ~~(1) The percent of potential SO<sub>2</sub> emissions (%P) to the atmosphere shall be computed using the following equation:  $\%Ps = [(100 - \%Rf)(100 - \%Rg)] / 100$  where: %Ps = percent of potential SO<sub>2</sub> emissions, percent; %Rf = percent reduction from fuel pretreatment, percent; and %Rg = percent reduction by SO<sub>2</sub> control system, percent.~~
- ~~(2) The procedures in Method 19 may be used to determine percent reduction (%Rf) of sulfur by such processes as fuel pretreatment (physical coal cleaning, hydrodesulfurization of fuel oil, etc.), coal pulverizers, and bottom and flyash interactions. This determination is optional.~~
- ~~(3) The procedures in Method 19 shall be used to determine the percent SO<sub>2</sub> reduction (%Rg) of any SO<sub>2</sub> control system. Alternatively, a combination of an "as fired" fuel monitor and emission rates measured after the control system, following the procedures in Method 19, may be used if the percent reduction is calculated using the average emission rate from the SO<sub>2</sub> control device and the average SO<sub>2</sub> input rate from the "as fired" fuel analysis for 30 successive boiler operating days.~~
- (4)(1) The appropriate procedures from Method 19 shall be used to determine the emission rate.
- (5) The continuous monitoring system in § 60.47a (b) and (d) shall be used to determine the concentrations of SO<sub>2</sub> and CO<sub>2</sub> or O<sub>2</sub>.

**Comment 16:**

Section D.1.9(b)(5): Per 40 CFR 60.47a(b), continuous SO<sub>2</sub> monitoring is not required since natural gas is the only fuel combusted. The section should be eliminated.

**Response to Comment 16:**

For the same reason presented in the Response to Comment 12, Condition D.1.9(b) has been modified to remove the condition originally listed as (b)(5). This Condition had been renumbered in Response to Comment 15 above.

**Comment 17:**

Section D.1.9(b): Since Sulfur Dioxide monitoring is not required for natural gas combustion, and fuel sampling is not as readily achievable for natural gas as for other fuels, we suggest that the Sulfur Dioxide compliance determination be specified as per the monitoring requirements in 40 CFR part 75.

**Response to Comment 17:**

The applicable requirement that supports this Condition (40 CFR 60.48a(c)) specifies certain procedures "shall be" used to demonstrate compliance with the applicable emission rate limitation. This Condition does specify a few alternatives, but the language requested is not in either section. Therefore, the addition of alternate compliance determination methods would not be consistent with the language in the NSPS.

**Comment 18:**

Section D.1.10(a): In the first sentence, delete the phrase "and percent reduction". As discussed previously, this is not applicable to this boiler.

**Response to Comment 18:**

For the same reason presented in the Response to Comment 12, Condition D.1.10(a) has been modified as follows:

Pursuant to 40 CFR 60.46a(e), for the initial performance test required under § 60.8, compliance with the sulfur dioxide emission limitations ~~and percent reduction requirements~~ under Condition D.1.4 and the nitrogen oxides emission limitation under Condition D.1.5 is based on the average emission rates for the first 30 successive boiler operating days. The initial performance test is the only test in which at least 30 days prior notice is required unless otherwise specified by the administrator. The initial performance test is to be scheduled so that the first boiler operating day of the 30 successive boiler operating days is completed within 60 days after achieving the maximum production rate at which the affected facility will be operated, but not later than 180 days after initial startup of the facility.

**Comment 19:**

Section D.1.11(e): For missing data, it is appropriate to use established missing data procedures already used by EPA, thus the second sentence of this condition should be revised to read "...the Permittee shall supplement emission data with other monitoring systems approved by IDEM, OAM and VCAPC using USEPA standard missing data procedures found in 40 CFR Part 75, Subpart D or the reference methods below."

**Response to Comment 19:**

The preferred method to show compliance with this NSPS is through the procedures specified within it. There is not really any provision to tie 40 CFR 75 into 40 CFR 60, and there are specific procedures contained within the NSPS itself, so the Condition was left as proposed. The source may submit a separate request with specific methods proposed for VCAPC and IDEM-OAM to evaluate at a later date.

**Comment 20:**

Section D.1.11(e)(1): The phrase "shall use" should be changed to "may use" to allow for the use of 40 CFR Part 75 missing data routines as referenced above.

**Response to Comment 20:**

The NSPS language for this Condition says shall, not may. The Condition can not be changed.

**Comment 21:**

Section D.1.11(e)(1)(b): Change "309 minutes in each hour" to "30 minutes in each hour".

**Response to Comment 21:**

This typographical error was actually in Condition D.1.11(d)(a)(b), and was corrected.

**Comment 22:**

Section D.1.13(d): Since the boiler will be operated on Natural Gas only, opacity should not be a problem. Thereby, we request that the daily visible emission notation be eliminated. This would be an unnecessary activity in obtaining the notations and in maintaining the records, and would not serve any useful purpose.

**Response to Comment 22:**

Condition D.1.13(d) was removed, with the rest of the Conditions remaining in, and the citation for (e) was changed to (d).

**Comment 23:**

Section D.1: Revise Boiler description to "... with a nominal maximum capacity..."

**Response to Comment 23:**

See Response to Comment 3 above.

**Comment 24:**

Section D.1: Revise Preheater description to "...with a nominal maximum capacity..."

**Response to Comment 24:**

See Response to Comment 3 above.

**Comment 25:**

Section D.1.14(a): Delete the parenthetical statement "(including the transmissometer)". The Evaporating Boiler 1C is fired only with natural gas and is not required to have an opacity monitor (or transmissometer), and thus this phrase is not applicable.

**Response to Comment 25:**

For the same reason presented in the Response to Comment 12, Condition D.1.14(a) has been modified as follows:

For sulfur dioxide, nitrogen oxides, and particulate matter emissions, the performance test data from the initial performance test and from the performance evaluation of the continuous monitors ~~(including the transmissometer)~~ are submitted to the IDEM, OAM and VCAPC.

**Comment 26:**

Section D.1.14(b)(3): Delete this section since the percent reduction requirement is not applicable.

**Response to Comment 26:**

For the same reason presented in the Response to Comment 12, Proposed Condition D.1.14(b)(3) has been removed, with the references following it being renumbered.

**Comment 27:**

Section D.1.14(c): Based on the multiple references to "inlet" and "outlet" emission rates, this section is obviously geared for sulfur dioxide monitoring and the percent removal requirement. Since sulfur dioxide monitoring is not required, and the percent removal requirement does not apply, this section should be deleted.

**Response to Comment 27:**

This Condition references another condition which includes both outlet SO<sub>2</sub> emissions as well as outlet NO<sub>x</sub> emissions. The condition also includes the terminology "as applicable" so any data that does not have to be collected does not trigger this requirement. Therefore, this condition will remain in the permit. The source may submit a separate request with specific reasons for VCAPC and IDEM-OAM to evaluate at a later date.

**Comment 28:**

Section D.1.14(d): References to opacity and Sulfur Dioxide should be eliminated from this requirement. Since there is not a requirement to monitor these pollutants, there is no minimum data requirements.

**Response to Comment 28:**

Condition D.1.14(d) was changed. The Condition now reads:

For any periods for which ~~opacity, sulfur dioxide or~~ nitrogen oxides emissions data ~~is~~ **are** not available, the owner or operator of the affected facility shall submit a signed statement indicating if any changes were made in operation of the emission control system during the period of data unavailability. Operations of the control system and affected facility during periods of data unavailability are to be compared with operation of the control system and affected facility before and following the period of data unavailability.

**Comment 29:**

Section D.1.14(f): Since an opacity limit does exist, periods of excess emissions should be defined and there should be a requirement to report any known periods of excess emissions. However, since opacity monitoring is not required, there should not be a requirement for a routine quarterly report, and this portion of this requirement (last sentence) should be deleted. Furthermore, as previously stated, since this unit will only be fired on natural gas, opacity should not be of concern.

**Response to Comment 29:**

There is in fact an opacity limitation, which is specified in Condition D.1.3. However, further review of the underlying condition of 40 CFR 60.7 showed that the requirement would not be needed when an opacity monitoring system is not required. Therefore Condition D.1.14(f) was removed with the following parts of that condition being renumbered.

**Comment 30:**

Section D.1.15(a): A quarterly excess emission report for Carbon Monoxide is not applicable since there is no short term emission limitation for CO. The limitation for CO is on a tons per 12 consecutive month basis, and this should be focus of the quarterly report. This section should be revised accordingly.

**Response to Comment 30:**

This requirement is needed. Even though the data is being compared to an annual total, it has to be prepared monthly, with a new 12 month total being developed. The Quarterly Excess Emission Report is the submission of the newly developed monthly totals and the corresponding 12 month totals. The reason the CEM data is referenced is not for comparison to a short term limitation, it is because you are relying on that CEM to provide to information needed to assess the monthly emissions.

**Comment 31:**

Section D.1.15(c): The purpose and information requested on the Natural Gas Fired Boiler Certification Form in not clear. The form requests information regarding "Alternate Fuel" and "Days Burning Alternate Fuel". The boiler is not permitted to burn an alternate fuel and therefore, the requested information is not applicable. At minimum, this condition and form should be clarified as to exactly what information is required and the purpose. Additionally, the mailing address on the form should be changed to "c/o Steven L. Pearl, 1000 East Main Street, Plainfield, IN. 46168.

**Response to Comment 31:**

This form is certification that only natural gas was burned in the boiler. As such it serves 2 purposes. First, it is verification that the only fuels combusted were included in the review. Second, it is verification that further monitoring relating to particulate matter or opacity is not needed. Therefore, the reporting requirement has been left in the permit. The requested mailing address change was made on all applicable forms.

**Comment 32:**

Section D.2: Consistent with the comment below regarding D.2.7, modify the description to define natural gas as the only fuel in simple cycle mode as follows: "Combustion Turbine, Identified as unit 1A, with a maximum nominal capacity of 1709.1 million Btu per hour, utilizing syngas or natural gas for fuel, using steam injection for control, utilizing syngas or natural gas for fuel in combined cycle mode exhausting to stack 1A, or utilizing natural gas for fuel in simple cycle mode exhausting through stack 1D.

**Response to Comment 32:**

The specific language that PSI Energy requested is confusing. Since the main objective was to indicate that the Turbine in single cycle mode could only burn natural gas, so the following change was made to the description in D.2 (and also to the description in A.2 for consistency):

Combustion Turbine, identified as unit 1A, with a nominal maximum capacity of 1709.1 million BTU per hour, utilizing syngas (combined cycle mode) or natural gas (either combined cycle or simple cycle mode) for fuel, using steam injection for control, and exhausting to stack 1A (combined cycle mode) or 1D (simple cycle mode).

**Comment 33:**

Section D.2.7: This condition requires opacity monitoring in accordance with 40 CFR 75.14. Upon completion of the Fuel Conversion Project, the CT will no longer be fired on fuel oil and will be natural gas fired only in simple cycle mode. Therefore, per 40 CFR 75.14(c) opacity monitoring will not be required on stack 1D. Before last sentence of Section D.2.7, add the sentence "Per 40 CFR 75.14(c), opacity monitoring is not required for simple cycle, natural gas only operation exhausting through stack 1D."

**Response to Comment 33:**

The requested clarification can be made. The language in Condition D.2.7 is changed to:

**D.2.7 Opacity Limitations**

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Pursuant to CP 167-2610-00021 (Issued May 27, 1993), the opacity from the combustion turbine peaking unit shall be limited to 20 percent. During the first year of commercial operation of the combustion turbine, opacity during start-up shall be limited to 60 percent not to exceed 10 minutes per 24 hour period. PSI Energy may request a special exemption pursuant to 326 IAC 5-1-3(d) if proper operation of the turbine justifies such a request. Compliance shall be determined by continuous opacity monitoring in accordance with 40 CFR 75.14. **Per 40 CFR 75.14(c), opacity monitoring is not required for simple cycle, natural gas only operation exhausting through stack 1D.** Compliance data shall be submitted to the Vigo County Air Pollution Control Department (VCAPCD).

Additionally, IDEM and VCAPC have determined the following changes are needed in the permit.

1. Several references within Section D to Conditions contained in Section C had incorrect identifications. Those conditions were upgraded as follows:
  - a. Condition D.1.15(a) was changed as follows:

The Permittee shall submit a quarterly excess emissions report, if applicable, based on the continuous emissions monitor (CEM) data for CO, pursuant to 326 IAC 3-5-7. These reports shall be submitted within thirty (30) calendar days following the end of each calendar quarter and in accordance with ~~Condition C-20~~ **Section C** - General Reporting Requirements of this permit.
  - b. Condition D.2.14(c) was changed as follows:

All records shall be maintained in accordance with ~~Section C-19~~ - General Record Keeping Requirements, of this permit.
  - c. Condition D.2.15(a) was changed as follows:

The Permittee shall submit a quarterly excess emissions report, if applicable, based on any continuous emission monitor (CEM) or continuous opacity monitor (COM) required by this section, pursuant to 326 IAC 3-5-7. These reports shall be submitted within thirty (30) calendar days following the end of each calendar quarter and in accordance with ~~Condition C-20~~ **Section C** - General Reporting Requirements, of this permit.



- d. Condition D.2.15(b) was changed as follows:

The Permittee shall submit a quarterly summary of the information required by Condition D.2.13(b) above, to document compliance with Conditions D.2.5, D.2.6, D.2.7, and D.2.11. These reports shall be submitted within thirty (30) calendar days following the end of each calendar quarter and in accordance with ~~Condition C.20~~ **Section C** - General Reporting Requirements, of this permit.

**Indiana Department of Environmental Management  
Office of Air Management  
and  
Vigo County Air Pollution Control**

**Technical Support Document (TSD) for a Part 70  
Significant Source Modification.**

**Source Background and Description**

<b>Source Name:</b>	<b>PSI Energy Inc., - Wabash River Generating Station</b>
<b>Source Location:</b>	<b>445 Bolton Road, West Terre Haute, IN 47885</b>
<b>County:</b>	<b>Vigo County</b>
<b>SIC Code:</b>	<b>4911</b>
<b>Operation Permit No.:</b>	<b>T 167-7176-00021</b>
<b>Operation Permit Issuance Date:</b>	<b>Not yet issued</b>
<b>Significant Source Modification No.:</b>	<b>167-11328-00021</b>
<b>Permit Reviewer:</b>	<b>Rob Harmon</b>

The Office of Air Management (OAM) and Vigo County Air Pollution Control (VCAPC) have reviewed a modification application from PSI Energy, Inc. relating to the construction of a fuel conversion project consisting of the following emission units and pollution control devices:

1. Boiler, identified as Unit 1C, with a maximum capacity of 397.8 million BTU per hour, using low NOx burners with flue gas recirculation as control, and exhausting to stack 1C.
2. Fuel preheater, identified as Unit 1E, with a maximum capacity of 7.13 million BTU per hour, using a low emission rate burner (described by the manufacturer as "moderate" instead of "standard") or equivalent for control, and exhausting to stack 1E.
3. Combustion Turbine, identified as Unit 1A, with a maximum capacity of 1709.1 million BTU per hour, utilizing syngas or natural gas for fuel, using steam injection for control, and exhausting to stack 1A (combined cycle mode) or 1D (simple cycle mode).

**History**

On August 24, 1999, PSI Energy, Inc. submitted an application to the OAM and VCAPC requesting to add natural gas as a fuel for their Combustion Turbine. This operation is a DOE funded (in part) demonstration project. There has been a reliability problem with the developing technology, and PSI Energy, Inc. desires the flexibility of fuels to ensure they can meet electric demand. They requested the combustion turbine be allowed to operate in both simple cycle and combined cycle modes. Also, they requested an additional boiler to replace steam lost when the gasification plant is not in operation. PSI Energy, Inc. has applied for, but not yet received a Part 70 permit.

All conditions from the previous permits relating to the Combustion Turbine have been incorporated into this permit as well, except for those conditions relating to fuel oil combustion, since the facility will no longer utilize fuel oil, even as a backup or emergency fuel.

## Source Definition

This power plant with gasification operations consists of a source with an on-site contractor:

- (1) Cinergy (PSI Energy) - Wabash River, the primary operation, is located at 450 Bolton Road, West Terre Haute, Indiana; and
- (2) Gasification Services, the supporting operation, is located at 444 West Sandford Road, West Terre Haute, Indiana.

IDEM and VCAPC has determined that Cinergy - Wabash River, and Gasification Services are under the common control of Cinergy - Wabash River. These two plants are considered one source due to contractual control. Therefore, the term "source" in the Part 70 documents refers to both Cinergy - Wabash River and Gasification Services as one source.

Separate Part 70 permits will be issued to Cinergy - Wabash River and Gasification Services solely for administrative purposes. The portion for Gasification Services has already been issued.

## Enforcement Issue

There are no enforcement actions pending.

## Stack Summary

Stack ID	Operation	Height (feet)	Diameter (feet)	Flow Rate (acfm)	Temperature (°F)
1A	Turbine/HRSG Main Stack (Unit 1A)	226	20	1,282,373	240
1D	Turbine/HRSG Bypass Stack (Unit 1A)	115	18	2,390,000	1100
1C	Natural Gas Fired Boiler (Unit 1C)	226	6.3	124,000	400
1E	Natural Gas Fired Fuel Preheater (Unit 1E)	28		1416 (scfm)	1133

## Recommendation

The staff recommends to the Commissioner that the Part 70 Significant Source Modification (for both construction and operation) be approved. This recommendation is based on the following facts and conditions:

Unless otherwise stated, information used in this review was derived from the application and additional information submitted by the applicant.

An application for the purposes of this review was received on August 14, 1999.

## Emission Calculations

See Appendix A of this document for detailed emissions calculations (Pages 1 through 6 of the Appendix).

## Potential To Emit of Modification

Pursuant to 326 IAC 2-1.1-1(16), Potential to Emit is defined as “the maximum capacity of a stationary source to emit any air pollutant under its physical and operational design. Any physical or operational limitation on the capacity of a source to emit an air pollutant, including air pollution control equipment and restrictions on hours of operation or type or amount of material combusted, stored, or processed shall be treated as part of its design if the limitation is enforceable by the U. S. EPA.”

This table reflects the PTE before controls. Control equipment is not considered federally enforceable until it has been required in a federally enforceable permit.

Pollutant	Potential To Emit (tons/year)
PM	57.18
PM-10	57.18
SO <sub>2</sub>	1463.99
VOC	21.49
CO	534.17
NO <sub>x</sub>	935.47
H <sub>2</sub> SO <sub>4</sub>	140.16

## Justification for Modification

The Part 70 Operating permit is being modified through a Part 70 Significant Source Modification. This modification is being performed pursuant to 326 IAC 2-7-10.5(f)(4), 326 IAC 2-7-10.5(g), and 326 IAC 2-7-10.5(h). This modification is considered Significant because Potential to Emit is greater than 25 tons per year of several criteria pollutants.

## County Attainment Status

The source is located in Vigo County.

Pollutant	Status
PM-10	attainment
SO <sub>2</sub>	maintenance
NO <sub>2</sub>	attainment
Ozone	attainment
CO	attainment
Lead	attainment

- (a) Volatile organic compounds (VOC) and oxides of nitrogen (NO<sub>x</sub>) are precursors for the formation of ozone. Therefore, VOC and NO<sub>x</sub> emissions are considered when evaluating the rule applicability relating to the ozone standards. Vigo County has been designated as attainment or unclassifiable for ozone. Therefore, VOC and NO<sub>x</sub> emissions were reviewed pursuant to the requirements for Prevention of Significant Deterioration (PSD), 326 IAC 2-2 and 40 CFR 52.21.
- (b) Vigo County has been classified as attainment or unclassifiable for all other criteria pollutants. Therefore, these emissions were reviewed pursuant to the requirements for Prevention of Significant Deterioration (PSD), 326 IAC 2-2 and 40 CFR 52.21.
- (c) Fugitive Emissions  
Since this type of operation is one of the 28 listed source categories under 326 IAC 2-2, the fugitive PM emissions are counted toward determination of PSD applicability.

## Source Status

Existing Source PSD or Emission Offset Definition (emissions after controls, based upon 8760 hours of operation per year at rated capacity and/or as otherwise limited):

Pollutant	Emissions (tons/year)
PM	greater than 100
PM-10	greater than 100
SO <sub>2</sub>	greater than 100
VOC	less than 100
CO	greater than 100
NO <sub>x</sub>	greater than 100

- (a) This existing source is a major stationary source because an attainment regulated pollutant is emitted at a rate of 100 tons per year or more, and it is one of the 28 listed source categories.
- (b) These emissions are based upon actual emissions from the latest emission statement.

## Potential to Emit of Modification After Issuance

The tables below summarize the potential to emit, reflecting all limits and netting (where applicable), of the significant emission units after controls. The control equipment is considered federally enforceable only after issuance of this Part 70 source modification.

Two different comparisons, for the purpose of determining PSD Significance, must be performed due to the previous PSD permit that was issued for this process. The previous permit contained a PSD review for both CO and H<sub>2</sub>SO<sub>4</sub>. Therefore, no extra reductions from the removal of Unit 1 (which was a requirement of that permit) exist. There were no other contemporaneous increases or decreases relating to those 2 pollutants. However, at the same time, the full PTE would not be compared to the significant threshold, because only the change in emissions counts for modifications. The emissions from the Combustion Turbine either remain the same or drop. For that reason, only the new equipment is considered in this portion of the review.

Potential to Emit (tons per year)		
Process/facility	CO	H <sub>2</sub> SO <sub>4</sub>
New Boiler PTE	156.80	0
Fuel Preheater PTE	0.69	0
Total PTE	157.49	0
PSD Significant Level	100	7
Limited PTE	less than 100	NA
Significant ?	N	N

The CO emissions from the Boiler and Fuel Preheater combined is limited to less than 100 tons/yr, therefore, PSD requirements do not apply. Compliance with this limit shall be demonstrated by a continuous monitoring system on the Boiler stack (supplemented with potential emission calculations for the heater, which are presented on Page 2 of 6 of TSD Appendix A).

The VOC emissions did not trigger the significant level, so no netting is required for that pollutant. The other criteria pollutants (PM, PM<sub>10</sub>, SO<sub>2</sub>, and NO<sub>x</sub>) all have to undergo a netting review. This review includes emissions reductions from the old Unit 1, which was removed from service on December 31, 1994.

Potential to Emit (tons per year)				
Process/facility	PM	PM10	SO <sub>2</sub>	NO <sub>x</sub>
Project Increases	57.18	57.18	1463.99	935.47
Contemporaneous Changes:				
Gasification Plant (Addition)	48	34.5	1044.1	97.8
Aux. Boiler (Addition)	3	3	0	126
Material Handling (Addition)	7.17	3.47	0	0
Unit 1 (Remove)	-126.4	-126.4	-5713.4	-1370
Net Emission Change	-11.05	-28.25	-3205.31	-210.73
Significant Level	25	15	40	40
Significant ?	N	N	N	N

This modification to an existing major stationary source is not major because the emissions increase is less than the PSD significant levels. Therefore, pursuant to 326 IAC 2-2, and 40 CFR 52.21, the PSD requirements do not apply.

### Federal Rule Applicability

- (a) The Boiler (Unit 1C) is subject to the New Source Performance Standard, 326 IAC 12, (40 CFR 60.40a, Subpart Da) Standards of Performance for Electric Utility Steam Generating Units for Which Construction is Commenced After September 18, 1978 (Copy Attached). The requirements are summarized below:

#### § 60.40a **Applicability and designation of affected facility**

- (a)(1) Indicates the minimum size for this Subpart is 250 million BTU per hour, which this unit exceeds, and  
(a)(2) Indicates construction has to commence after September 18, 1978, which has to happen on this unit.

So the applicability determination is valid.

§ 60.41a **Definitions** (only selected definitions which appear to affect this determination are included, the word(s) being defined appear in *Italics*)

*Electric Utility steam generating unit* means any steam electric generating unit that is constructed for the purpose of supplying more than 25 MW electrical output to any utility power distribution system for sale. Any steam supplied to a steam distribution system for the purpose of providing steam to a steam-electric generator that would produce electrical energy for sale is also considered in determining the electrical energy output capacity of the affected facility.

*Fossil fuel* means natural gas, petroleum, coal, and any form of solid, liquid, or gaseous fuel derived from such material for the purpose of creating useful heat.

*Potential combustion concentration* means the theoretical emissions (ng/J, lb/million BTU heat input) that would result from combustion of a fuel in an uncleaned state (without emission control systems) and: (c) For nitrogen oxides is: (1) 290 ng/J (0.67 lb/million BTU)

heat input for gaseous fuels. (Note: Only the gaseous portion of this definition is included to prevent confusion.)

*Boiler operating day* means a 24-hour period during which fossil fuel is combusted in a steam generating unit for the entire 24 hours.

**§ 60.42a Standard for particulate matter.**

- (a)(1) On and after the date on which the performance test required to be completed under § 60.8 is completed, no owner or operator subject to the provisions of this subpart shall cause to be discharged into the atmosphere from any affected facility any gases which contain in excess of: 13 ng/J (0.03 lb/million BTU) heat input derived from the combustion of solid, liquid, or gaseous fuel.
- (b) On and after the date the particulate matter performance test required to be conducted under § 60.8 is completed, no owner or operator subject to the provisions of this subpart shall cause to be discharged into the atmosphere from any affected facility any gases which exhibit greater than 20 percent opacity (6-minute average), except for one 6-minute period per hour of not more than 27 percent opacity.

**§ 60.43a Standard for sulfur dioxide.**

- (a) This section is for solid fuel or solid derived fuel only.
- (b) On and after the date on which the initial performance test required to be conducted under § 60.8 is completed, no owner or operator subject to the provisions of this subpart shall cause to be discharged into the atmosphere from any affected facility which combusts liquid or gaseous fuels (except for liquid or gaseous fuels derived from solid fuels and as provided under paragraph (e) or (h) of this section), any gases which contain sulfur dioxide in excess of:
  - (b)(1) 340ng/J (0.80 lb/million BTU) heat input and 10 percent of the potential combustion concentration (90 percent reduction), or
  - (b)(2) 100 percent of the potential combustion concentration (zero percent reduction) when emissions are less than 86 ng/J (0.20 lb/million BTU) heat input.
- (c) This section is for solid solvent refined coal (SRC-I) only.
- (d) This section is for anthracite, resource recovery facilities, or noncontinental locations utilizing solid or solid-derived fuel only.
- (e) This section is for noncontinental locations utilizing liquid or gaseous fuels (excluding solid-derived fuel) only.
- (f) The emission reduction requirements under this section do not apply to any affected facility that is operated under an SO<sub>2</sub> commercial demonstration permit issued by the Administrator in accordance with the provisions of § 60.45a.
- (g) Compliance with the emission limitation and percent reduction requirements under this section are both determined on a 30-day rolling average basis except as provided under paragraph (c) of this section.
- (h) This section applies for simultaneous combustion of multiple fuels only.

**§ 60.44a Standard for nitrogen oxides.**

- (a) On and after the date on which the initial performance test required to be conducted under § 60.8 is completed, no owner or operator subject to the provisions of this

subpart shall cause to be discharged into the atmosphere from any affected facility, except as provided under paragraph (b) of this section, any gases which contain nitrogen oxides in excess of the following emission limits, based on a 30-day rolling average.

- (a)(1) NO<sub>x</sub> emission limits. (From a table, using Gaseous Fuels & All Other Fuels) 86 ng/J or 0.20 lb/million BTU.
- (a)(2) NO<sub>x</sub> reduction requirement. (From a table, Gaseous Fuels) 25 percent reduction of potential combustion concentration.
- (b) This section applies for coal-derived liquid fuel operating under a commercial demonstration permit.
- (c) This section applies for simultaneous combustion of multiple fuels only.

**§ 60.45a Commercial demonstration permit.**

This boiler is not an emerging technology, so these sections do not apply.

**§ 60.46a Compliance provisions.**

- (a) Compliance with the particulate matter emission limitation under § 60.42a(a)(1) constitutes compliance with the percent reduction requirements for particulate matter under § 60.42a(a)(2) and (3).
- (b) Compliance with the nitrogen oxides emission limitation under § 60.44a(a) constitutes compliance with the percent reduction requirements under § 60.44a(a)(2).
- (c) The particulate matter emission standards under § 60.42a and the nitrogen oxides emission standards under § 60.44a apply at all times except during periods of startup, shutdown or malfunction. The sulfur dioxide emission standards under § 60.43a apply at all times except during periods of startup, shutdown, or when both emergency conditions exist and the procedures under paragraph (d) of this section are implemented.
- (d) This section only applies to systems with a flue gas desulfurization system.
- (e) After the initial performance test required under § 60.8, compliance with the sulfur dioxide emission limitations and percentage reduction requirements under § 60.43a and the nitrogen oxides emission limitations under § 60.44a is based on the average emission rate for 30 successive boiler operating days. A separate performance test is completed at the end of each boiler operating day after the initial performance test, and a new 30 day average emission rate for both sulfur dioxide and nitrogen oxides and a new percent reduction for sulfur dioxide are calculated to show compliance with the standards.
- (f) For the initial performance test required under § 60.8, compliance with the sulfur dioxide emission limitations and percent reduction requirements under § 60.43a and the nitrogen oxides emission limitation under § 60.44a is based on the average emission rates for the first 30 successive boiler operating days. The initial performance test is the only test in which at least 30 days prior notice is required unless otherwise specified by the administrator. The initial performance test is to be scheduled so that the first boiler operating day of the 30 successive boiler operating days is completed within 60 days after achieving the maximum production rate at which the affected facility will be operated, but not later than 180 days after initial startup of the facility.



- (g) Compliance is determined by calculating the arithmetic average of all hourly emission rates for SO<sub>2</sub> and NO<sub>x</sub> for the 30 successive boiler operating days, except for data obtained during startup, shutdown, malfunction (NO<sub>x</sub> only), or emergency conditions (SO<sub>2</sub> only). Compliance with the percentage reduction requirement for SO<sub>2</sub> is determined based on the average inlet and average outlet SO<sub>2</sub> emission rates for the 30 successive boiler operating days.
- (h) If an owner or operator has not obtained the minimum quantity of emission data as required under § 60.47a of this subpart, compliance of the affected facility with the emission requirements under §§ 60.43a and 60.44a of this subpart for the day on which the 30-day period ends may be determined by the Administrator by following the procedures in section 7 of Method 19.

**§ 60.47a Emission Monitoring.**

- (a) Requires a COM, except where gaseous fuel is the only fuel combusted.
- (b) Requires a CEM for SO<sub>2</sub>, except where natural gas is the only fuel combusted.
- (c) The owner or operator of an affected facility shall install, calibrate, maintain, and operate a continuous monitoring system, and record the output of the system, for measuring nitrogen oxides emissions discharged to the atmosphere.
- (d) The owner or operator of an affected facility shall install, calibrate, maintain, and operate a continuous monitoring system, and record the output of the system, for measuring the oxygen or carbon dioxide content of the flue gases at each location where sulfur dioxide or nitrogen oxides emissions are monitored.
- (e) The continuous monitoring systems under paragraphs (b), (c), and (d) of this section are operated and data recorded during all periods of operation of the affected facility including periods of startup, shutdown, malfunction or emergency conditions, except for continuous monitoring system breakdowns, repairs, calibration checks, and zero and span adjustments.
- (f) The owner or operator shall obtain emission data for at least 18 hours in at least 22 out of 30 successive boiler operating days. If this minimum data requirement cannot be met with a continuous monitoring system, the owner or operator shall supplement emission data with other monitoring systems approved by the Administrator or the reference methods and procedures as described in paragraph (h) of this section.
- (g) The 1-hour averages required under paragraph § 60.13(h) are expressed in ng/J (lbs/million BTU) heat input and used to calculate the average emission rates under § 60.46a. The 1-hour averages are calculated using the data points required under § 60.13(b). At least two data points must be used to calculate the 1-hour averages.
- (h) When it becomes necessary to supplement continuous monitoring system data to meet the minimum data requirements in paragraph (f) of this section, the owner or operator shall use the reference methods and procedures as specified in this paragraph. Acceptable alternative methods and procedures are given in paragraph (j) of this section.
  - (h)(1) Method 6 shall be used to determine the SO<sub>2</sub> concentration. (Not needed since SO<sub>2</sub> not required to be monitored)
  - (h)(2) Method 7 shall be used to determine the NO<sub>x</sub> concentration at the same location as the NO<sub>x</sub> monitor. Samples shall be taken at 30-minute intervals. The arithmetic average of two consecutive samples represents a 1-hour average.
  - (h)(3) The emission rate correction factor, integrated bag sampling and analysis procedure of Method 3B shall be used to determine the O<sub>2</sub> or CO<sub>2</sub> concentration at the same

- location as the O<sub>2</sub> or CO<sub>2</sub> monitor. Samples shall be taken for at least 309 minutes in each hour. Each sample represents a 1-hour average.
- (h)(4) The procedure in Method 19 shall be used to compute each 1-hour average concentration in ng/J (lb/million BTU) heat input.
- (i) The owner or operator shall use methods and procedures in this paragraph to conduct monitoring system performance evaluations under § 60.13(c) and calibration checks under § 60.13(d). Acceptable alternative methods and procedures are given in paragraph (j) of this section.
- (i)(1) Methods 6, 7, and 3B, as applicable, shall be used to determine O<sub>2</sub>, SO<sub>2</sub>, and NO<sub>x</sub> concentrations.
- (i)(2) SO<sub>2</sub> or NO<sub>x</sub> (NO), as applicable, shall be used for preparing the calibration gas mixtures (in N<sub>2</sub>, as applicable) under Performance Specification 2 of Appendix B of this part.
- (i)(3) For affected facilities burning only fossil fuel, the span value for a continuous monitoring system for measuring opacity is between 60 and 80 percent and for a continuous monitoring system measuring nitrogen oxides is determined as follows: (from table, gas) 500 ppm.
- (i)(4) Only applies if a calculation was required under (i)(3) above.
- (i)(5) Only applies if SO<sub>2</sub> is being monitored.
- (j) The owner or operator may use the following as alternatives to the reference methods and procedures specified in this section.
- (j)(1) For Method 6, Method 6A or 6B (whenever Methods 6 and 3 or 3B data are used) or 6C may be used. Each Method 6B sample obtained over 24 hours represents 24 1-hour averages. If Method 6A or 6B is used under paragraph (i) of this section, the conditions under § 60.46(d)(1) apply; these conditions do not apply under paragraph (h) of this section. (Not needed, since not monitoring for SO<sub>2</sub>)
- (j)(2) For Method 7, Method 7A, 7C, 7D, or 7E may be used. If Method 7C, 7D, or 7E is used, the sampling time for each run shall be 1-hour.
- (j)(3) For Method 3, Method 3A or 3B may be used if the sampling time is 1 hour.
- (j)(4) For Method 3B, Method 3A may be used.

**§ 60.48a Compliance determination procedures and methods.**

- (a) In conducting the performance tests required in § 60.8, the owner or operator shall use as reference methods and procedures the methods in Appendix A of this part or the methods and procedures specified in this section, except as provided in § 60.8(b). Section 60.8(f) does not apply to this section for SO<sub>2</sub> and NO<sub>x</sub>. Acceptable alternative methods are given in paragraph (e) of this section.
- (b) The owner or operator shall determine compliance with the particulate matter standards in § 60.42a as follows:
- (b)(1) The dry basis F factor (O<sub>2</sub>) procedures in Method 19 shall be used to compute the emission rate of particulate matter.
- (b)(2) For the particulate matter concentration, Method 5 shall be used at affected facilities without wet FGD systems and Method 5B shall be used after wet FGD systems.
- (b)(2)(i) The sampling time and sample volume for each run shall be at least 120 minutes and 1.70 dscm (60 dscf). The probe and filter holder heating system in the sampling train may be set to provide an average gas temperature of no greater than 160±14 EC (320±25 EF).
- (b)(2)(ii) For each particulate run, the emission rate correction factor, integrated or grab sampling and analysis procedures of Method 3B shall be used to determine the O<sub>2</sub> concentration. The O<sub>2</sub> sample shall be obtained simultaneously with, and at the same traverse points as, the particulate run. If the particulate run has more than 12 traverse points, the O<sub>2</sub> traverse points may be reduced to 12 provided that Method 1 is used to locate the 12

O<sub>2</sub> traverse points. If the grab sampling procedure is used, the O<sub>2</sub> concentration for the run shall be the arithmetic mean of all the individual O<sub>2</sub> concentrations at each traverse point.

- (b)(3) Method 9 and the procedures in § 60.11 shall be used to determine opacity.
- (c) The owner or operator shall determine compliance with the SO<sub>2</sub> standards in § 60.43a as follows:
  - (c)(1) The percent of potential SO<sub>2</sub> emissions (%P) to the atmosphere shall be computed using the following equation:  $\%Ps = [(100 - \%Rf)(100 - \%Rg)] / 100$  where: %Ps= percent of potential SO<sub>2</sub> emissions, percent; %Rf= percent reduction from fuel pretreatment, percent; and %Rg= percent reduction by SO<sub>2</sub> control system, percent.
  - (c)(2) The procedures in Method 19 may be used to determine percent reduction (%Rf) of sulfur by such processes as fuel pretreatment (physical coal cleaning, hydrodesulfurization of fuel oil, etc.), coal pulverizers, and bottom and flyash interactions. This determination is optional.
  - (c)(3) The procedures in Method 19 shall be used to determine the percent SO<sub>2</sub> reduction (%Rg) of any SO<sub>2</sub> control system. Alternatively, a combination of an "as fired" fuel monitor and emission rates measured after the control system, following the procedures in Method 19, may be used if the percent reduction is calculated using the average emission rate from the SO<sub>2</sub> control device and the average SO<sub>2</sub> input rate from the "as fired" fuel analysis for 30 successive boiler operating days.
  - (c)(4) The appropriate procedures from Method 19 shall be used to determine the emission rate.
  - (c)(5) The continuous monitoring system in § 60.47a (b) and (d) shall be used to determine the concentrations of SO<sub>2</sub> and CO<sub>2</sub> or O<sub>2</sub>.
- (d) The owner or operator shall determine compliance with the NO<sub>x</sub> standard in § 60.44a as follows:
  - (d)(1) The appropriate procedures in Method 19 shall be used to determine the emission rate of NO<sub>x</sub>.
  - (d)(2) The continuous monitoring system in § 60.47a (c) and (d) shall be used to determine the concentrations of NO<sub>x</sub> and CO<sub>2</sub> or O<sub>2</sub>.
- (e) the owner or operator may use the following as alternatives to the reference methods and procedures specified in this section:
  - (e)(1) For Method 5 or 5B, Method 17 may be used at facilities with or without wet FGD systems if the stack temperature at the sampling location does not exceed an average temperature of 160 EC (320 EF). The procedures of §§ 2.1 and 2.3 of Method 5B may be used in Method 17 only if it is used after wet FGD systems. Method 17 shall not be used after wet FGD systems if the effluent is saturated or laden with water droplets.
  - (e)(2) The Fc factor (CO<sub>2</sub>) procedures in Method 19 may be used to compute the emission rate of particulate matter under the stipulations of § 60.46(d)(1). The CO<sub>2</sub> shall be determined in the same manner as the O<sub>2</sub> concentration.
- (f) Applies to combined cycle gas turbines only.

**§ 60.49a Reporting requirements.**

- (a) For sulfur dioxide, nitrogen oxides, and particulate matter emissions, the performance test data from the initial performance test and from the performance evaluation of the continuous monitors (including the transmissometer) are submitted to the Administrator.
- (b) For sulfur dioxide and nitrogen oxides the following information is reported to the Administrator for each 24-hour period.
  - (b)(1) Calendar date.

- (b)(2) The average sulfur dioxide and nitrogen oxide emission rates (ng/J or lb/million BTU) for each 30 successive boiler operating days, ending with the last 30-day period in the quarter; reasons for non-compliance with the emission standards; and, description of corrective actions taken.
- (b)(3) Percent reduction of the potential combustion concentration of sulfur dioxide for each 30 successive boiler operating days, ending with the last 30-day period in the quarter; reasons for non-compliance with the standard; and, description of corrective actions taken.
- (b)(4) Identification of the boiler operating days for which pollutant or diluent data have not been obtained for at least 18 hours of operation of the facility; justification for not obtaining sufficient data; and description of corrective actions taken.
- (b)(5) Identification of the times when emissions data have been excluded from the calculation of average emission rates because of startup, shutdown, malfunction (NO<sub>x</sub> only), emergency conditions (SO<sub>2</sub> only), or other reasons, and justification for excluding data for reasons other than startup, shutdown, malfunction, or emergency conditions.
- (b)(6) Identification of "F" factor used for calculations, method of determination, and type of fuel combusted.
- (b)(7) Identification of times when hourly averages have been obtained based on manual sampling methods.
- (b)(8) Identification of the times when the pollutant concentration exceeded full span of the continuous monitoring system.
- (b)(9) Description of any modifications to the continuous monitoring system which could affect the ability of the continuous monitoring system to comply with Performance Specifications 2 or 3.
- (c) If the minimum quantity of emission data as required by § 60.47a is not obtained for any 30 successive boiler operating days, the following information obtained under the requirements of § 60.46a(h) is reported to the Administrator for that 30-day period:
  - (c)(1) The number of hourly averages available for outlet emission rates (n<sub>o</sub>) and inlet emission rates (n<sub>i</sub>) as applicable.
  - (c)(2) The standard deviation of hourly averages for outlet emission rates (s<sub>o</sub>) and inlet emission rates (s<sub>i</sub>) as applicable.
  - (c)(3) The lower confidence limit for the mean outlet emission rates (E<sub>o</sub>\*) and the upper confidence limit for the mean inlet emission rate (E<sub>i</sub>\*) as applicable.
  - (c)(4) The applicable potential combustion concentration.
  - (c)(5) The ratio of the upper confidence limit for the mean outlet emission rate (E<sub>o</sub>\*) and the allowable emission rate (E<sub>std</sub>) as applicable.
- (d) Only applies for SO<sub>2</sub> limits and control system failures. No SO<sub>2</sub> control system on this unit.
- (e) Only applies if fuel pretreatment credit is claimed.
- (f) For any periods for which opacity, sulfur dioxide or nitrogen oxides emissions data are not available, the owner or operator of the affected facility shall submit a signed statement indicating if any changes were made in operation of the emission control system during the period of data unavailability. Operations of the control system and affected facility during periods of data unavailability are to be compared with operation of the control system and affected facility before and following the period of data unavailability.
- (g) The owner or operator of the affected facility shall submit a signed statement indicating whether:
  - (g)(1) The required continuous monitoring system calibration, span, and drift checks or other periodic audits have or have not been performed as specified.

- (g)(2) The data used to show compliance was or was not obtained in accordance with approved methods and procedures of this part and is representative of plant performance.
- (g)(3) The minimum data requirements have or have not been met; or, the minimum data requirements have not been met for errors that were unavoidable.
- (g)(4) Compliance with the standards has or has not been achieved during the reporting period.
- (h) For the purposes of the reports required under § 60.7, periods of excess emissions are defined as all 6-minute periods during which the average opacity exceeds the applicable opacity standards under § 60.42a(b). Opacity levels in excess of the applicable opacity standard and the date of such excesses are to be submitted to the Administrator each calendar quarter.
- (i) The owner or operator of an affected facility shall submit the written reports required under this section and subpart A to the Administrator for every calendar quarter. All quarterly reports shall be postmarked by the 30<sup>th</sup> day following the end of each calendar quarter.
- (b) The Combustion Turbine (Unit 1A) is still subject to the New Source Performance Standard, 326 IAC 12, (40 CFR 60.330, Subpart GG) Standards of Performance for Stationary Gas Turbines (Copy Attached). Some of these requirements have already been met as part of the initial permit (CP 167-2610-00021, Issued May 27, 1993) The requirements are summarized below:

**§ 60.330 Applicability and designation of affected facility.**

- (a) The provisions of this subpart are applicable to the following affected facilities: All stationary gas turbines with a heat input at peak load equal to or greater than 10.7 gigajoules per hour, based on the lower heating value of the fuel fired.
- (b) Any facility under paragraph (a) of this section which commences construction, modification, or reconstruction after October 3, 1977, is subject to the requirements of this part except as provided in paragraphs (e) and (j) of § 60.332.

So the applicability determination is valid.

**§ 60.331 Definitions** (only selected definitions which appear to affect this determination are included, the word(s) being defined appear in *Italics*)

*Stationary gas turbine* means any simple cycle gas turbine, regenerative cycle gas turbine or any gas turbine portion of a combined cycle steam/electric generating system that is not self propelled. It may, however, be mounted on a vehicle for portability.

*Simple cycle gas turbine* means any stationary gas turbine which does not recover heat from the gas turbine exhaust gases to preheat the inlet combustion air to the gas turbine, or which does not recover heat from the gas turbine exhaust gases to heat water or generate steam.

*Combined cycle gas turbine* means any stationary gas turbine which recovers heat from the gas turbine exhaust gases to heat water or generate steam.

*Ice Fog* means an atmospheric suspension of highly reflective ice crystals.

*Peak load* means 100 percent of the manufacturer's design capacity of the gas turbine at ISO standard day conditions.

*Base load* means the load level at which a gas turbine is normally operated.

*Electric utility stationary gas turbine* means any stationary gas turbine constructed for the purpose of supplying more than one-third of its potential electric output capacity to any utility power distribution system for sale.

§ 60.332 **Standard for nitrogen oxides.**

- (a) On and after the date of the performance test required by § 60.8 is completed, every owner or operator subject to the provisions of this subpart as specified in paragraphs (b), (c), and (d) of this section shall comply with one of the following, except as provided in paragraphs (e), (f), (g), (h), (i), (j), (k), and (l) of this section.
- (a)(1) No owner or operator subject to the provisions of this subpart shall cause to be discharged into the atmosphere from any stationary gas turbine, any gases which contain nitrogen oxides in excess of:  $STD = 0.0075 \times (14.4) / Y + F$  where: STD= allowable NO<sub>x</sub> emissions (percent by volume at 15 percent oxygen and on a dry basis). Y= manufacturer's rated heat rate at manufacturer's rated load (kilojoules per watt hour) or, actual measured heat rate based on lower heating value of fuel as measured at peak load for the facility. The value of Y shall not exceed 14.4 kilojoules per watt hour. F= NO<sub>x</sub> emission allowance for fuel-bound nitrogen as defined in paragraph (a)(3) of this section.
- (a)(2) Similar calculation, but for other specific types of turbines.
- (a)(3) Table outlining the fuel bound nitrogen allowance.
- (b) Electric utility stationary gas turbines with a heat input at peak load greater than 107.2 gigajoules per hour (100 million BTU/hour) based on the lower heating value of the fuel fired shall comply with the provisions of paragraph (a)(1) of this section.
- (c) Details the equation to use for stationary gas turbines with a heat input rate between 10 and 100 million BTU/hour.
- (d) Details the equation to use for stationary gas turbines with a rated base load of 30 megawatts or less.
- (e) Exemption for 10-100 million BTU/hour stationary gas turbines if commenced construction prior to October 3, 1982.
- (f) Stationary gas turbines using water or steam injection for control of NO<sub>x</sub> emissions are exempt from paragraph (a) when ice fog is deemed a traffic hazard by the owner or operator of the gas turbine.
- (g) Other specific exemptions which do not appear to apply in this case.
- (h) R&D turbine exemption, which does not appear to apply in this case.
- (i) Exemptions from the requirements of paragraph (a) of this section will be granted on a case-by-case basis as determined by the Administrator in specific geographical areas where mandatory water restrictions are required by governmental agencies because of drought conditions. These exemptions will be allowed only while the mandatory water restrictions are in effect.
- (j) Specific exemption for stationary gas turbines, that do not apply to this operation (due to the dates).
- (k) Specific exemption for emergency fuels, which does not apply in this case (since natural gas is not the primary fuel, and no emergency fuel is currently available).

- (l) Specific exemption for regenerative cycle gas turbines that does not apply.

**§ 60.333 Standard for sulfur dioxide.**

On and after the date on which the performance test required to be completed by § 60.8 is completed, every owner or operator subject to the provision of this subpart shall comply with one or the other of the following conditions:

- (a) No owner or operator subject to the provisions of this subpart shall cause to be discharged into the atmosphere from any stationary gas turbine any gases which contain sulfur dioxide in excess of 0.015 percent by volume at 15% oxygen and on a dry basis.
- (b) No owner or operator subject to the provisions of this subpart shall burn in any stationary gas turbine any fuel which contains sulfur in excess of 0.8 percent by weight.

**§ 60.334 Monitoring of operations.**

- (a) The owner or operator of any stationary gas turbine subject to the provisions of this subpart and using water injection to control NO<sub>x</sub> emissions shall install and operate a continuous monitoring system to monitor and record the fuel consumption and the ratio of water to fuel being fired in the turbine. This system shall be accurate to within ±5.0 percent and shall be approved by the Administrator.
- (b) The owner or operator of any stationary gas turbine subject to the provisions of this subpart shall monitor sulfur content and nitrogen content of the fuel being fired in the turbine. The frequency of determination of these values shall be as follows:
  - (b)(1) If the turbine is supplied its fuel from a bulk storage tank, the values shall be determined on each occasion that fuel is transferred to the storage tank from any other source.
  - (b)(2) If the turbine is supplied its fuel without intermediate bulk storage the values shall be determined and recorded daily. Owners, operators or fuel vendors may develop custom schedules for determination of the values based on the design and operation of the affected facility and the characteristics of the fuel supply. These custom schedules shall be substantiated with data and must be approved by the Administrator before they can be used to comply with paragraph (b) of this section.
- (c) For the purpose of reports required under § 60.7(c), periods of excess emissions that shall be reported are defined as follows:
  - (c)(1) Nitrogen oxides. Any one-hour period during which the average water-to-fuel ratio, as measured by the continuous monitoring system, falls below the water-to-fuel ratio determined to demonstrate compliance with § 60.332 by the performance test required in § 60.8 or any period during which the fuel-bound nitrogen of the fuel is greater than the maximum nitrogen content allowed by the fuel-bound nitrogen allowance used during the performance test required in § 60.8. Each report shall include the average water-to-fuel ratio, average fuel consumption, ambient conditions, gas turbine load, and nitrogen content of the fuel during the period of excess emissions, and the graphs or figures developed under § 60.335(a).
  - (c)(2) Sulfur dioxide. Any daily period during which the sulfur content of the fuel being fired in the gas turbine exceeds 0.8 percent.
  - (c)(3) Ice fog. Each period during which an exemption provided in § 60.332(g) is in effect shall be reported in writing to the Administrator quarterly. For each period the ambient conditions existing during the period, the date and time the air pollution control system was deactivated, and the date and time the air pollution control system was reactivated shall be reported. All quarterly reports shall be postmarked by the 30<sup>th</sup> day following the end of each calendar quarter.

- (c)(4) Emergency fuel reporting, which should not apply in this case.

**§ 60.335 Test methods and procedures.**

- (a) To compute the nitrogen oxides emissions, the owner or operator shall use analytical methods and procedures that are accurate to within 5 percent and are approved by the Administrator to determine the nitrogen content of the fuel being fired.
- (b) In conducting the performance tests required in § 60.8, the owner or operator shall use as reference methods and procedures the test methods in appendix A of this part or other methods and procedures as specified in this section, except as provided for in § 60.8(b). Acceptable alternative methods and procedures are given in paragraph (f) of this section.
- (c) The owner or operator shall determine compliance with the nitrogen oxides and sulfur dioxide standards in §§ 60.332 and 60.333(a) as follows:
- (c)(1) The nitrogen oxides emission rate ( $\text{NO}_x$ ) shall be computed for each run using the following equation:  $\text{NO}_x = (\text{NO}_{x0})(P_r/P_o)^{0.5} e^{19(H_o-0.00633)}(288\text{K}/T_a)^{1.53}$  where:  $\text{NO}_x$ = emission rate of  $\text{NO}_x$  at 15 percent  $\text{O}_2$  and ISO standard conditions, volume percent;  $\text{NO}_{x0}$ = observed  $\text{NO}_x$  concentration, ppm by volume;  $P_r$ = reference combustor inlet absolute pressure at 101.3 kilopascals ambient pressure, mm Hg;  $P_o$ = observed combustor inlet absolute pressure at test, mm Hg;  $H_o$ = observed humidity of ambient air, g  $\text{H}_2\text{O}$ /g air;  $e$ = transcendental constant, 2.718;  $T_a$ = ambient temperature, EK.
- (c)(2) The monitoring device of § 60.334(a) shall be used to determine the fuel consumption and the water-to-fuel ratio necessary to comply with § 60.332 at 30, 50, 75, and 100 percent of peak load or at four points in the normal operating range of the gas turbine, including the minimum point in the range and peak load. All loads shall be corrected to ISO conditions using the appropriate equations supplied by the manufacturer.
- (c)(3) Method 20 shall be used to determine the nitrogen oxides, sulfur dioxide, and oxygen concentrations. The span values shall be 300 ppm of nitrogen oxide and 21 percent oxygen. The  $\text{NO}_x$  emissions shall be determined at each of the load conditions specified in paragraph (c)(2) of this section.
- (d) The owner or operator shall determine compliance with the sulfur content standard in § 60.333(b) as follows: ASTM D 2880-71 shall be used to determine the sulfur content of liquid fuels and ASTM D 1072-80, D 3031-81, D 4084-82, or D 3246-81 shall be used for the sulfur content of gaseous fuels (incorporated by reference - see § 60.17). The applicable ranges of some ASTM methods mentioned above are not adequate to measure the levels of sulfur in some fuel gases. Dilution of samples before analysis (with verification of the dilution ratio) may be used, subject to the approval of the Administrator.
- (e) To meet the requirements of § 60.334(b), the owner or operator shall use the methods specified in paragraphs (a) and (b) of this section to determine the nitrogen and sulfur contents of the fuel being burned. The analysis may be performed by the owner or operator, a service contractor retained by the owner or operator, the fuel vendor, or any other qualified agency.
- (f) The owner or operator may use the following as alternatives to the reference methods and procedures specified in this section:
- (f)(1) Instead of using the equation in paragraph (b)(1) of this section, manufacturers may develop ambient condition correction factors to adjust the nitrogen oxides emission level measured by the performance test as provided in § 60.8 to ISO standard day conditions. These factors are developed for each gas turbine model they



manufacturer in terms of combustion inlet pressure, ambient air pressure, ambient air humidity, and ambient air temperature. They shall be substantiated with data and must be approved for use by the Administrator before the initial performance test required by § 60.8. Notices of approval of custom ambient condition correction factors will be published in the Federal Register.

- (c) The provisions of 40 CFR 60 Subpart A - General Provisions, which are incorporated as 326 IAC 12, apply to boiler and combustion turbine except when otherwise specified in 40 CFR 60 Subpart Da or 40 CFR 60 Subpart GG.
- (d) There are no National Emission Standards for Hazardous Air Pollutants (NESHAPs)(326 IAC 14 and 40 CFR Part 63) applicable to this proposed modification.

### **State Rule Applicability - Entire Source**

#### **326 IAC 2-2 (Prevention of Significant Deterioration)**

- (a) This source is a major stationary source because it is one of the 28 listed source categories and it does emit 100 tons per year or more of several regulated pollutants after limitations. However, since this modification does not meet the definition of "significant" pursuant to 326 IAC 2-2, and 40 CFR 52.21, the PSD requirements will not apply.
- (b) The Permittee shall be required to install continuous emissions monitoring system in accordance with 326 IAC 3-5, to demonstrate compliance with the CO limitation. In periods of downtime, compliance shall be demonstrated using the manufacturer's maximum emission rates or by an approved alternate method as described in the construction permit. Emissions shall be calculated by multiplying the heat input capacity times the appropriate emission factor.
- (c) The combustion turbine was previously reviewed (CP 167-2610-00021, Issued May 27, 1993) with regard to the Prevention of Significant Deterioration rules (326 IAC 2-2, and 40 CFR 52.21). Even though the modification of the turbine to accommodate natural gas (along with the other changes) was not considered a significant modification, according to the PSD requirements, the combustion turbine still has to meet the requirements as laid out in the previous permit. Those requirements are:
  - 4. Pursuant to CP 167-2610-00021 (and 326 IAC 2-2-3), the best available control technology (BACT) for carbon monoxide shall be good combustion practices. CO emissions shall not exceed 15 ppm when burning syngas and 25 ppm when burning No. 2 backup oil corrected to 15% oxygen and 75% or greater load. The practice and instrumentation plan shall be submitted to the VCAPCD along with the methods and parameters which are based on test results to ensure continued compliance.
  - 5. Pursuant to CP 167-2610-00021 (and 326 IAC 2-2-3), the best available control technology (BACT) for sulfuric acid mist shall be: a) 0.01 lb per million BTU by limiting the sulfur content of the syngas to 360 ppm or less as measured by a gas chromatograph, and b) design exit gas temperature from the HRSG to be at least 264 EF.

#### **326 IAC 2-6 (Emission Reporting)**

This source is located in Vigo County and the potential to emit of all criteria pollutants is less than one hundred (100) tons per year. The source is one of the twenty-eight (28) listed sources and its potential to emit is greater than one-hundred (100) tons per year including fugitive emissions, therefore, 326 IAC 2-6 applies.

#### **326 IAC 3-5 (Continuous Monitoring of Emissions):**

- 1. Pursuant to 326 IAC 3-5-1(d)(1), the Permittee with an emission limitation or permit requirement established under 326 IAC 2-1-3(i)(8) shall be required to install, calibrate,

certify, operate and maintain a continuous monitoring system for measuring emissions rates (for CO in this case) in pounds per hour from stack 1C in accordance with 326 IAC 3-5-2 and 326 IAC 3-5-3.

2. The Permittee shall submit to IDEM, OAM and VCAPC, within ninety (90) days after monitor installation, a complete written continuous monitoring standard operating procedure (SOP), in accordance with the requirements of 326 IAC 3-5-4.
3. The Permittee shall record the output of the system and shall perform the required record keeping, pursuant to 326 IAC 3-5-6, and reporting, pursuant to 326 IAC 3-5-7.
4. In instances of downtime, the Permittee shall use the manufacturer's maximum emission rate to demonstrate compliance with the limits established in the construction permit.
5. After twelve (12) consecutive months of operation, the Permittee may submit to OAM and VCAPC alternative emission factors and their corresponding operating parameters to use in lieu of the manufacturer's emission rates in instances of downtime. The alternative emissions factors must be approved by OAM and VCAPC prior to use in calculating emissions for the limitations established in this construction permit. The alternative emission factors shall be based upon collected monitoring and/or approved performance tests. In the event that the information submitted does not contain sufficient data to establish appropriate emission factors, the Permittee shall continue to collect data until appropriate emission factors can be established. During this period of time, the Permittee shall continue to use the manufacturer's maximum emission rates in periods of downtime.

This condition shall determine continuous compliance with the CO emission limits established in this construction permit to avoid 326 IAC 2-2.

#### 326 IAC 5-1 (Opacity Limitations)

Pursuant to 326 IAC 5-1-2 (Opacity Limitations), except as provided in 326 IAC 5-1-3 (Temporary Opacity Exemptions), opacity shall meet the following, unless otherwise stated in this permit:

- (a) Opacity shall not exceed an average of forty percent (40%) any one (1) six (6) minute averaging period as determined in 326 IAC 5-1-4.
- (b) Opacity shall not exceed sixty percent (60%) for more than a cumulative total of fifteen (15) minutes (sixty (60) readings) as measured according to 40 CFR 60, Appendix A, Method 9 or fifteen (15) one (1) minute nonoverlapping integrated averages for a continuous opacity monitor) in a six (6) hour period.

#### State Rule Applicability - Individual Facilities

##### 326 IAC 6-2-4 (Particulate Matter Emissions from Sources of Indirect Heating)

Pursuant to 326 IAC 6-2-4, the particulate matter emissions from the new boiler (Unit 1C) shall not exceed 0.106 pounds per million BTU heat input capacity. This limitation was determined using the following equation:

$$Pt = 1.09/Q^{0.26} \quad \text{with} \quad \begin{array}{ll} Pt = & \text{The allowable emission rate in pounds per million} \\ & \text{BTU heat input capacity; and} \\ Q = & \text{The source wide total heat input capacity for all} \\ & \text{boiler operations. Which in this case is 397.8} \\ & \text{million BTU per hour (for this new boiler) plus 7324} \\ & \text{million BTU per hour (for the existing units).} \end{array}$$

A more detailed emission rate calculation is provided on Page 1 of 6 of TSD Appendix A.

The NSPS related particulate matter limitation is more stringent than the state rule in this case. Therefore, compliance with the NSPS limitation would also demonstrate compliance with this state rule.

## **Compliance Requirements**

Permits issued under 326 IAC 2-7 are required to ensure that sources can demonstrate compliance with applicable state and federal rules on a more or less continuous basis. All state and federal rules contain compliance provisions, however, these provisions do not always fulfill the requirement for a more or less continuous demonstration. When this occurs IDEM, OAM and VCAPC, in conjunction with the source, must develop specific conditions to satisfy 326 IAC 2-7-5. As a result, compliance requirements are divided into two sections: Compliance Determination Requirements and Compliance Monitoring Requirements.

Compliance Determination Requirements in Section D of the permit are those conditions that are found more or less directly within state and federal rules and the violation of which serves as grounds for enforcement action. If these conditions are not sufficient to demonstrate continuous compliance, they will be supplemented with Compliance Monitoring Requirements, also Section D of the permit. Unlike Compliance Determination Requirements, failure to meet Compliance Monitoring conditions would serve as a trigger for corrective actions and not grounds for enforcement action. However, a violation in relation to a compliance monitoring condition will arise through a source's failure to take the appropriate corrective actions within a specific time period.

The compliance monitoring requirements applicable to this modification are as follows:

1. The Boiler (Unit 1C) has applicable compliance monitoring conditions as specified below:

Operation of a continuous emission monitor (CEM) to track and record the CO emissions from this unit.

These monitoring conditions are necessary in order to avoid the requirements of 326 IAC 2-2 (Prevention of Significant Deterioration)

2. Both the Boiler (Unit 1C) and the Combustion Turbine (Unit 1A) have applicable compliance monitoring conditions specified in the respective NSPS. These requirements have been specified above.

## **Conclusion**

The construction and operation of this proposed modification shall be subject to the conditions of the attached proposed Part 70 Significant Source Modification No. 167-11328-00021.

**Appendix A: Emission Calculations**

PSI Energy, Inc.  
 445 Bolton Road, West Terre Haute, Indiana 47885  
 CP: 167-11328-00021  
 Reviewed By: Rob Harmon  
 Application Received: August 24, 1999

397.8 million BTU per hour boiler with natural gas as the only fuel

In the application, the company provided maximum emission rates based on information from the Boiler manufacturer. These maximum emission rates have been used to calculate PTE.

	NOx	CO	SO <sub>2</sub>	VOC	PM/PM <sub>10</sub>
Max hourly emissions	39.8	35.8	0.24	1.7	4.0
Tons per year @8760 hours*	174.32	156.80	1.05	7.45	17.52

\* - calculated by taking the (pounds per hour emission rate)\*8760 (hours per year)/2000(pounds per ton)

Additionally, This boiler is subject to the requirements of 326 IAC 6-2. The limitation and compliance related calculations are presented below.

397.8 million BTU per hour New Boiler (Unit 1C)  
 144 million BTU per hour existing Aux Boiler (Unit 1B)  
 960 million BTU per hour existing Boiler (Unit 2)  
 960 million BTU per hour existing Boiler (Unit 3)  
 960 million BTU per hour existing Boiler (Unit 4)  
 1150 million BTU per hour existing Boiler (Unit 5)  
 3150 million BTU per hour existing Boiler (Unit 6)

7721.8 million BTU per hour total heat input capacity from Boiler operations.

326 IAC 6-2-4 applies since this construction will receive this permit after September 21, 1983.

0.106 is the allowable emission rate in pounds of particulate matter emitted per million BTU\*\*

\*\* - calculated by using the equation  $Pt = 1.09/Q^{0.26}$  with Pt = allowable ER and Q = the total heat input capacity.

**Compliance demonstration**

397.8 million BTU per hour New Boiler (Unit 1C)  
 0.106 allowable emission rate (lb/million BTU)  
 42.295 allowable emission rate (lb/hour)

This allowable emission rate is significantly higher than the 4 pounds per hour which was provided by the manufacturer. Therefore, the boiler is expected to be in compliance with this rule.

**Appendix A: Emission Calculations**

PSI Energy, Inc.  
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7.13 million BTU per hour heater with natural gas as the only fuel

In the application, the company provided maximum emission rates based on information from the heater manufacturer. These maximum emission rates have been used to calculate PTE.

	NOx	CO	SO2	VOC	PM/PM10
Max hourly emissions	0.7766	0.1576	0.004	0.2067	0.054
Tons per year @8760 hours*	3.40	0.69	0.02	0.91	0.24

\* - calculated by taking the (pounds per hour emission rate)\*8760 (hours per year)/2000(pounds per ton)

**Appendix A: Emission Calculations**

PSI Energy, Inc.  
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1709.1 million BTU per hour Combustion Turbine with natural gas and syngas for fuel

In the application, the company provided maximum emission rates based on information from the Combustion Turbine manufacturer. These maximum emission rates have been used to calculate PTE.

Since the Combustion Turbine has more than one fuel, and more than one operating scenario the conditions at which each pollutant is expected to have the highest hourly emission rate is identified below the table.

	NOx	CO	SO <sub>2</sub>	VOC	PM/PM <sub>10</sub>	H <sub>2</sub> SO <sub>4</sub>
Max hourly emissions	173	86	334	3	9.0	32
Conditions	(1)	(2)	(3)	(1)	(4)	(3)
Tons per year @8760 hours*	757.74	376.68	1462.92	13.14	39.42	140.16

\* - calculated by taking the (pounds per hour emission rate)\*8760 (hours per year)/2000(pounds per ton)

This calculation allows for either 100% operation on natural gas or 100% operation on syngas.

- (1) - 100% Natural Gas, Baseload, 7degrees F
- (2) - 100% Syngas, 50% Load, -10 degrees F
- (3) - 100% Syngas, Base Load, 59 degrees F
- (4) - All Cases

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PSI Energy, Inc.  
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This page establishes the total PTE for the project, before any limitations or netting.

	NOx	CO	SO <sub>2</sub>	VOC	PM/PM <sub>10</sub>	H <sub>2</sub> SO <sub>4</sub>
Boiler PTE	174.32	156.80	1.05	7.45	17.52	0.00
Fuel Preheater PTE	3.40	0.69	0.02	0.91	0.24	0.00
Combustion Turbine PTE	757.74	376.68	1462.92	13.14	39.42	140.16
Total PTE (tons per year)	935.47	534.17	1463.99	21.49	57.18	140.16

**Appendix A: Emission Calculations**

PSI Energy, Inc.  
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## PSD related netting calculations

Initial determination of pollutants which might trigger PSD review.

The project total potential emissions were determined previously to be as follows:

	NOx	CO	SO <sub>2</sub>	VOC	PM/PM <sub>10</sub>	H <sub>2</sub> SO <sub>4</sub>
Total PTE (tons per year)	935.47	534.17	1463.99	21.49	57.18	140.16
PSD Significant Threshold	40	100	40	40	25/15	7
Above Threshold?	Y	Y	Y	N	Y/Y	Y

In order to avoid PSD either netting, limitations, or a combination of the 2 must be incorporated.

The source has asked that for the old equipment (Combustion Turbine) the allowable emission rates be used for the netting calculation, instead of the past actual emissions. This is supported by the fact that the project is a DOE demonstration project and is not proven technology. They simply have not operated up to capacity for any extended period of time and there is no 2 year period where actual emissions would be representative of normal operation.

Because the CO and H<sub>2</sub>SO<sub>4</sub> emissions from the original permit were major for PSD, they can not be netted out in the same manner as the others. For that reason I will handle those 2 sets of calculations completely separate.

Detailed CO and H<sub>2</sub>SO<sub>4</sub> determination of PSD applicability.

There are no contemporaneous increases and decreases for these 2 pollutants because the boiler removal in December of 1994 was used in the PSD permit. However, the PTE expressed above is not correct for determination of PSD applicability on the CT. The addition of natural gas as an allowed fuel on the CT does not change the potential (or allowable) emissions of either CO or H<sub>2</sub>SO<sub>4</sub>. Since these are not changing they would not be included in the calculations. Clearly though, all requirements which were placed on the CT in the previous permit should be carried forward to this one. For calculation purposes, only the boiler and fuel preheater would be considered for these 2 pollutants.

	CO (tons/yr)	H <sub>2</sub> SO <sub>4</sub> (tons/yr)
Boiler PTE	156.80	0
Fuel Preheater PTE	0.69	0
Total PTE	157.49	0
Significant Level	100	7

So, the H<sub>2</sub>SO<sub>4</sub> emissions are not significant, but (without any limitations) the CO emissions would be. However, PSI Energy has agreed to limit the combined CO emissions from these 2 units to less than the 100 tpy threshold. This will be verified by utilization of a CEM and keeping records (on the boiler) and using emission factors (for the fuel preheater and when the monitoring does not provide sufficient data).

Limited PTE	<100	0
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**Appendix A: Emission Calculations**

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## PSD related netting calculations

Now, a detailed determination, with regard to PSD applicability, must be done for PM, PM10, SO2, and NOx. These 4 can all be addressed using the traditional netting approach. All rates below are in tons per year.

	PM	PM10	SO2	NOx
Project Increases:	57.18	57.18	1463.99	935.47
Contemporaneous Changes:				
Gasification Plant (Add)	48.00	34.50	1044.10	97.80
Aux. Boiler (Add)	3.00	3.00	0.00	126.00
Material Handling (Add)	7.17	3.47	0.00	0.00
Unit 1 (Remove)	-126.40	-126.40	-5713.40	-1370.00
Net Emission Change	-11.05	-28.25	-3205.31	-210.73

Therefore, there is a net decrease in emissions for all 4 pollutants in question (using this method)